

Louisiana State University LSU Digital Commons

LSU Doctoral Dissertations

Graduate School

2010

Child acquisition of referring expressions

Carlton M. Downey

Louisiana State University and Agricultural and Mechanical College

Follow this and additional works at: https://digitalcommons.lsu.edu/gradschool_dissertations



Part of the [Communication Sciences and Disorders Commons](#)

Recommended Citation

Downey, Carlton M., "Child acquisition of referring expressions" (2010). *LSU Doctoral Dissertations*. 1405.
https://digitalcommons.lsu.edu/gradschool_dissertations/1405

This Dissertation is brought to you for free and open access by the Graduate School at LSU Digital Commons. It has been accepted for inclusion in LSU Doctoral Dissertations by an authorized graduate school editor of LSU Digital Commons. For more information, please contact gradetd@lsu.edu.

CHILD ACQUISITION OF REFERRING EXPRESSIONS

A Dissertation

Submitted to the Graduate Faculty of the
Louisiana State University and
Agricultural and Mechanical College
in partial fulfillment of the
requirements for the degree of
Doctor of Philosophy

in

The Department of Communication Sciences and Disorders

by

Carlton M. Downey
B.A., Northwestern State University, 1997
M.A., Northwestern State University, 1998
May 2010

ACKNOWLEDGEMENTS

I have been fortunate in my time as a doctoral student to have many people to help me achieve this goal. Although these words will never be enough to convey my deepest and sincerest gratitude, I would like to acknowledge the important people who have had a profound impact on my life and work.

I would like to thank the members of my committee, Dr. Janet Norris, Dr. Paul Hoffman, Dr. Hugh Buckingham, Dr. Neila Donovan, and Dr. Loretta Pecchioni. I have been blessed to have members who are thoughtful, engaging, and genuinely excited about this research, and I have appreciated their encouragement, comments, and suggestions during the process. Foremost among these committee members, I would like to thank Dr. Janet Norris for never allowing me to give up on this project; her investment and guiding influence in this project and in my studies is a debt that I will never be able to repay. All of the students who are lucky enough to have Dr. Norris as a professor and mentor are able to witness her passion and zeal for research and the field of Communication Sciences and Disorders firsthand, and I am no exception. Her dedication to her students, research, and the children helped through her work is an inspiration to all who are able to work with her. I have been fortunate to learn much from her as a teacher, researcher, and mentor, and I am most grateful for her guidance.

Dr. Buckingham and Dr. Hoffman have also had a profound impact on my studies. Dr. Buckingham was the first person I met in the department, and from that initial meeting, I knew that I wanted to study under his direction as well. His immense knowledge of the field, his ability to make complex ideas understandable, and his exuberance all make him one of the best professors I have had the fortune to have during my time at LSU. During my time teaching for the department, he was an excellent mentor who always offered ideas when I had difficulty

figuring out how to present something to students in a manner that was understandable and exciting to them. After taking courses from Dr. Buckingham and having him as my evaluator as an instructor, I learned much from him, and my teaching style mimics his in many ways.

Although I did not have the opportunity to take courses from Dr. Hoffman, his impact on my research and my studies has been profound nonetheless. Dr. Hoffman always took the time to answer questions, and our informal discussions and talks in his office before and after classes during my studies were an integral part of my understanding of the field.

I would also like to thank Raven Johnson, the Communication Sciences and Disorders Department Coordinator, for her efforts to see my paperwork through and helping me with the actual process of being a graduate student. Dr. Emily Smith also deserves my gratitude. Her work was very influential on this project, and it could not have been done without her previous efforts. I would also like to thank Dr. Melinda Miller Holt, a friend and statistics professor at Sam Houston State University, for looking at the project and helping me with all of the statistics. A very special thank you should also be given to my Wednesday night classmates (Ashley Borque Meaux, Shara Brinkley, Laura Delrose, Christina Tausch, and Mona Alkadi) who were instrumental in rekindling my passion for the dissertation research and in the revision of the dissertation. Their ideas and insights came at the expense of their own work, and I am grateful for their input.

I would also like to thank my family, my wife Kim and our two daughters, Cassidy and Camille. Without Kim's support, unconditional love, and encouragement, I would have never entered the Doctorial program or gotten to this point of my academic career. She has been there for me, Cassidy and Camille when school, work, and research have consumed me. I am blessed to have her as a wife, and her sacrifice for my studies is yet another example of her dedication

and unconditional love. It was fun to have Cassidy and Camille participate in the study, but it is, and always be, more fun being their Dad. I learn and observe from them each day, and by having them as daughters, I have been given the riches of love and laughter that no person deserves. I hope that whatever I presume to have accomplished now and in the future is surpassed by my dedication, passion, and love for my family.

Lastly, I would like to thank my friends and extended family. My parents, grandparents, and other family members have encouraged me along the way, and I have felt their unwavering support throughout my life and my academic career. My friends and colleagues have also provided much needed support, especially Alan Ainsworth, Ana Garza, and Beverly Hixon.

TABLE OF CONTENTS

ACKNOWLEDGEMENTS	ii
LIST OF TABLES.....	vi
LIST OF FIGURES	vii
ABSTRACT	viii
REVIEW OF LITERATURE	1
METHODS	27
RESULTS.....	38
DISCUSSION.....	48
REFERENCES.....	60
APPENDIX	
A ABBREVIATIONS	64
B PARENT CONSENT FORM.....	65
C TASK PROCEDURES.....	67
D DATA ANALYSIS FORM.....	72
E SAMPLE TRANSCRIPTS.....	73
VITA.....	81

LIST OF TABLES

1	Summary of Participants in Study.....	28
2	Interrater Reliability.....	37
3	Referring Expressions in Different Age Groups.....	38
4	Number of Occurrences and Percentage of Categories of Total Referring Expressions by Age Group across the Seven Representational Tasks.....	43
5	Performance of Different Age Groups on the Seven Tasks	47

LIST OF FIGURES

1	The Situational-Discourse-Semantic (SDS) Model	25
---	--	----

ABSTRACT

Children, like adults, use referring expressions to refer to specific objects, events, or people. Research has provided insights into how children use referring expressions and the appearance of forms developmentally (Radford, 1990; Abu-Akel, et al., 2004; Pine & Lieven, 1997). This study examined how three, four, and five year-old children use referring expressions across increasingly more decontextualized tasks as defined by the Situational-Discourse-Semantic (SDS) Model (Norris & Hoffman, 1993, 2002) .

The participants included 4 three-year-old, 12 four-year-old, and 20 five-year-old children. Language samples were elicited using seven tasks of increasing difficulty. The referring expressions produced for each task were categorized based on their usage, and then analyzed for similarities and differences in the frequencies and types of referring expressions used within and between contextualized and decontextualized levels, tasks, and age groups.

A significant difference was found in how participants across the three different ages used referring expressions in the contextualized tasks versus the decontextualized tasks. The relationship between the task and category also revealed that the task significantly affected the number of referring expressions found in a given category across all of the participant age groups. Lastly, the difference between the participants in the three different age groups and the tasks was examined. Tasks 3, 6, and 7 all showed a significant group difference for performance on these tasks.

Through this study, we have gained insights into referring expressions, including what they are and how they are used in contextualized and decontextualized language samples. In examining the language samples, we have started to explore how children use referring expressions, including the use of cohesive ties and types of errors children produce. Although

looking at the language samples from this syntactic perspective is useful, this study also considers the effects of context and meaning and how these semantic-pragmatic variables affect the use of referring expressions. In addition, this study provides some early insights into effects of changing context and how this interacts with age.

REVIEW OF LITERATURE

One of the fundamental aspects of communication is that people have the ability to use varying forms of reference (nouns, pronouns, determiners, etc.) as a means of communicating with others about a specific person, place, thing, or event. The use of referring expressions allows the speaker to refer back to information previously stated or information that is known by both speaker and hearer in a more specific, efficient manner. For example, a speaker might say, “Sandra Day O’Conner is a member of the Supreme Court. She was the first woman appointed to it.” In the second sentence, “she” would refer to Sandra Day O’Conner and “it” would refer to the Supreme Court. Moreover, by saying “a member,” an implicature is made whereby the speaker is letting the hearer know that there is more than one member of the Supreme Court. In this example, having to repeat the information over to explain facts that may be obvious to both speaker and hearer would be inefficient and less concise if communication continued without the use of referring expressions.

Fortunately for most speakers and hearers, referring expressions are acquired at an early age as children begin to acquire the linguistic and cognitive abilities to communicate in a more adult-like, efficient way. The ability to express thoughts more clearly and specifically is the primary reason why children acquire the ability to use referring expressions. This is an important part of the overall language acquisition process because children are beginning to have new experiences and interactions with their environments that they are now more cognitively aware of the language acquisition process. The ability to convey what is happening in this dynamic and vast environment, to refer a listener specifically to an event, and to limit possible referents to a listener, are driving forces behind reference acquisition. The study of referring expressions in child speech is important in that it allows researchers to measure not only

linguistic output of children at given ages, but it also allows for theory regarding the cognitive processes children undergo when using referring expressions.

Early Use of Functional Elements

Children, like adults, use referring expressions to refer to specific objects, events, or people. Initially, though, children will leave out the determiner from his or her speech. In the following example, the child uses other parts of speech fine, but he leaves out the determiner. The adult asked, "The baseball had eyes?" The child answered, "Yes had eyes." When children do use determiners and other referential forms and err in using them, it is often where the child often chooses the wrong determiner to refer to an event or object. In errors like the one in the next example, a different determiner (or personal pronoun) used by the child would have made the car more specific to the hearer. The adult told the child, "Tell her to come and see *your* car." The child said, "Mama, come and see *a* car." The information given by the parent should allow the child to use a more specific referring expression since the object (car) is a given entity in the context of the conversation. The child, however, uses a more general determiner (weaker degree of what is known) to refer to the car. Errors like this one indicate that a child may not have developed the ability to use language in a manner that would specify objects, events, and people. The child at this point does not have the awareness or the ability to specify these things to add specific knowledge to his or her utterances.

One of the problems for referring expressions in the language acquisition process is that the words that often make up many of the referring expressions are those found in functional categories rather than lexical ones. Words found in the functional categories are abstract and usually have no obvious conceptual meaning. The words from functional categories (determiners, demonstratives, articles, indefinites, etc.) are used in a rule-based, grammatical

way versus lexical words that are used from a person's mental-lexicon in a more associative manner. If a functional word is left out of an utterance, the utterance will usually still have a communicative effect. In the second example above, if the child had said, "Mama, come and see car," the utterance would still have had a communicative effect. However, if words from the lexical categories are left out, the communicative effect of the utterance is often greatly reduced or altered. Thus, "Mama come see" has its communicative effect reduced.

Words from the functional categories are often paired with ones from the lexical categories to create referring expressions that are much more specific than just using the lexical noun. The difference between the noun *horse* and *a horse, the horse, some horse, that horse* is significant in terms of what is communicated. The lexical noun with the functional word creates a more specific reference than the lexical noun alone. In the developmental language acquisition process, words from the functional categories present conceptual issues for children; thus, it would follow that initial use would be with lexical nouns. Radford (1990) suggests that children initially categorize these functional words as lexical noun phrases rather than adult-like determiner phrases because the phonological and morphological information in lexical categories is more salient to the child. Studies show that by around the age of two, most children produce determiners where they are needed (Abu-Akel, et al., 2004; Pine & Lieven, 1997), although Radford (1990) maintains that children do not use function words in an adult-like way until they are around four years old.

Early work by Bloom (1973) indicates that children understand function words before they begin to use them. Gerken and McIntosh (1993) confirmed Bloom's work by having two year-olds who produced no functional morphemes in their speech chose a correct picture more frequently when presented with a grammatical and ungrammatical choice where the two choices

differed only in the functional material that described the picture. Even when children use the functional morphemes in their speech, the acquisition of the functional material is not complete. Children often incorrectly assign functional morphemes to objects or actions. Pine and Martindale (1996) also show an overlap in the contexts in which two year-old children use different determiner types indicating that the process of acquisition is a gradual one.

Tomasello (2000) realizes that children may seem to be as linguistically competent as adults, but he urges researchers to look beyond language output and more into the abstract categories in determining linguistic competence. Tomasello (2000) argues that children do, in fact, use language in adult-like forms at a very young age; however, he allows for another possibility as to why children are so remarkably competent linguistically. Tomasello (2000) claims that children either have the linguistic competence as adults do or that children are learning from adults in an imitative manner. In either case, linguistic competence appears to be the same based upon the output. It is by studying the differences in child output when the child generates speech based upon specific words and phrases and when the output is generated on the basis of abstract linguistic categories and schemas that we can determine if a child really communicates on an adult syntactic level.

In looking at various abstract categories, several observations have been made. Tomasello (2000) studied child language to see instances where children used their language in an item-specific way. In analyzing diaries, he found that children used verbs in very item specific ways. A verb could be limited to one construction, yet another verb could take on several constructions. Pine and Lieven (1997) found that children have no abstract notion that a determiner belongs to a category. Children used the determiners with different sets of nominals. Pizutto and Caselli (1994) found that 3 year-old Italian speakers did not use different verb forms

available very well. The implication is that children learn the verbs as words initially without regard to the class of verbs. Experiments using “tracer elements” have also been done. The tracer is where a novel linguistic item (a verb in this case) was introduced to the child in one syntactic construction, and researchers then indicated whether or not the child could use novel verbs in other syntactical constructions. Maratsos, Gudeman, Gerard-Ngo, P. and G. Dehart (1987) taught children 4.5 to 5.5 years old *fud* as an intransitive verb, and then asked children a series of questions to see if the children could use the verb in the transitive case. The children could, and the researchers concluded that children must have some syntactic categories and schema that allow them to do this. Tomasello, Akhtar, Dodson, and Rekau, L. (1997) used children much younger in age to show that the notion of syntactic categories and schema follows a developmental trajectory. Tomasello et al. (1997) examined how children age 1 ½ to almost 2 years old used newly acquired verbs in single word utterances. They concluded that there is not a difference in the way children learned and used nouns and verbs as lexical items. If children acquire language in this manner, as Tomasello et al. (1997) maintains, then learning functional categories would initially be done so in a lexical manner whereby children, although sounding adult-like, do not understand the complexities of abstract referring expressions.

Problems Children Have with Referring Expressions

Intention Reading and Communicative Intent. Children must be able to identify a speaker’s intentions and communicative intent and be able to use, understand, and comprehend references. When children become better at using determiners and other referring expressions, the errors seem to move from lexical ones, to omission of the determiner, and finally to choosing the determiner that best conveys the speaker’s specific intent. When determiners are used consistently as referring expressions in child speech, however, the errors children make seem to

be on a cognitive or pragmatic level in choosing the most appropriate determiner in a given context. Referring expressions along the hierarchy allow speakers and hearers to communicate on a specific level by choosing a referring expression that is associated with a particular cognitive status.

When the speaker chooses a particular referring form to express his communicative intent within a particular context, the speaker is assuming that the addressee has certain knowledge and assumptions. Therefore, in order for referring expressions to be used properly, a speaker must have the ability to make certain assumptions about the hearer's knowledge and be able to choose the referring form that best works for the given context.

Taking into account what we believe the hearer knows requires the ability to use language from the listener's perspective. A child's ability to consider the listener is difficult considering children are often egocentric communicators who pay little attention to the listener. Piaget (1962) contends that children rarely put themselves in another person's point of view. The process in which a child considers the listener is a complex one that would require a theory of mind and vast amounts of cognitive processing.

Maratsos (1976) explains the process,

His reference must also find in his listener an instantaneous recognition of a particular X unique from all other Xs in the content of the discourse. The speaker must be able to identify the X as one already conspicuous in the discourse either through unique physical presence, social knowledge, implication, or overt mention. Thus the child must both discover this condition on the use of *the* X from his own experiences and must discover this as well the circumstances under which his listener will be able to make the requisite interpretation. (p. 10)

One problem that can arise in the process of using referring expressions is that the speaker may believe that the hearer has knowledge of a particular event, person, or object when the hearer in fact has no knowledge. The hearer is left to construct what it is that is being

referred to. Piaget (1955) points out that children often use various referring expressions without a clear indication as to what is being referred to: “Gio (8 years old) tells the story of Niobe in the role of the explainer: ‘Once upon a time there was a lady who has twelve boys and twelve girls, and then a fairy a boy and a girl. And then Niobe wanted to have some more sons...’”(p. 116).

Ambiguous Reference. Another problem that children face occurs when there is an ambiguous reference that a child has to resolve. According to Jackendoff (2002), when there is nothing for the referring expression to refer back to, then it is up to the hearer to find something that can serve as a referent. When a speaker assumes that the hearer has knowledge of something and the hearer does not, the hearer may be able to add new information to older information and construct new knowledge that will satisfy the referential expression. Another problem occurs when the purported referent is in conflict with one’s knowledge. If a person says, “Hand me that color on the table,” and there is no color on the table, then the hearer must use a repair strategy (guessing, ignoring, asking for clarification) to try and determine what is being referred to. For example, there might be a colored pen on the table and the hearer guesses that by color the speaker means the pen. Using repair strategies and constructing new knowledge in the absence of a clear referent for a referring expression is also a complex process that would require tremendous processing efforts to be made by children.

Dual Possibilities for a Referring Expression. Even when there appears to be a referent for an object, person, or event to refer to, the task of reference resolution is made more difficult by the dual nature of some referring expressions. Searle (1969) argues that meaning can be found in a speaker’s words that go far beyond the literal meaning of the utterance. He contends that an utterance has a literal meaning and an illocutionary meaning, the speakers intended message. Searle seeks to find out how a hearer can understand what a speaker means if

the statement has a literal and indirect meaning. He believes that both speaker and hearer must have shared background information, and the hearer must be rational and able to infer from the context in which the speech act is uttered.

Searle (1969) claims that speakers have the ability to communicate the direct use of the utterance, the literal meaning, and the indirect use of the utterance, the nonliteral or illocutionary meaning. Searle says that “the inferential strategy is to establish, first, that the primary illocutionary point departs from the literal, and second, what the primary illocutionary point is” (1969, p. 268). Searle considers the following sentence: *Can you pass the salt?* According to Searle, both the literal and illocutionary meanings are available to the hearer. However, the hearer will probably infer that the literal meaning is secondary while the illocutionary meaning is the primary act of the utterance; thus, the hearer will realize that this is a request to pass the salt. Searle claims that some of the indirect directives more commonly understood by their illocutionary meaning rather than their literal one. While choosing which meaning the speaker intends seems like an easy task, young children may have difficulty reading the speaker’s intentions and having enough awareness of the contextual clues in their environment to help them resolve the speaker’s meaning.

Constraints on Functional Elements. Abney (1987) also noted that determiners and other functional elements have constraints that may cause children to not use determiners or to use them in certain cases. He claimed that children who have acquired the ability (or some ability) to use determiners will not do so for three reasons. He first posits that children will project the functional element only when the syntax deems it necessary. In other cases, a child might omit the determiner completely if an object or event is evident to the hearer and the speaker. In these cases, children optionally project the determiner and use it when the contextual

information, or lack thereof, makes it necessary.

The other theory that Abney (1987) asserts is that children will leave out determiners to avoid redundant phonological material, especially if the information is already given in a context. In this example, a caregiver and a child had the following conversation.

Parent: Do you need a band-aid for the sore on your back?

Child: Yes, a orange Shrek band-aid for my sore please.

Parent: An orange Shrek band-aid?

Child: Yes, band-aid for back.

In this case, the child deleted the extra information carried by “An orange Shrek band-aid” because given the context, the child was able to answer the question posed to her with a shorter reply.

Boyle and Gerken (1997) examined the influence of lexical familiarity on child omission of functional morphemes. In their study, Boyle and Gerken looked specifically to see if there was a non-metrical effect of the omission of functional morphemes. They found that children preserved the most important object articles. Determiners that were used before familiar words were preserved more often than when they appeared before unfamiliar words or nonsense words. There was no significant difference in the deletion of determiners between the nonsense and unfamiliar words. This research may indicate that children find familiar words more relevant, use less effort in processing known content words, or that children are much more in tune with the perception of a word than originally thought.

Theory of Mind

In light of these theories and experiments, the question becomes what does a child have available to him or her to assist in the acquisition of complex, abstract elements of language, and how does a child acquire functional categories. If functional elements are used referentially, a

child must make certain determinations regarding the intentions of the speaker. Child use of functional elements does not reach adult like status until a child can understand others as well as his or her own wants, needs, beliefs, and desires. Acquiring the ability to mutually ascribe mental states in an effort to make sense of the social world around them, children use their “Theory of Mind” (TOM) in an effort to communicate and adapt to their environment. Astington (2001) maintains that theory of mind is what ultimately allows children to understand human behavior. She contends,

It is called a theory of mind rather than a theory of behavior because much of people’s behavior depends on what is going on in their minds—their thoughts, wants, feelings, plans, and so on. In order to explain what we did or what we are going to do, we tell one another about what we want, what we believe, what we hope for, what we intend, and so on. Moreover, we attempt to interpret other people’s actions by considering their thoughts and wants. The basic premise of the theory of mind is that people act to fulfill their desires in light of their beliefs[...] Our understanding of one another, indeed all of our social interaction, is based on a theory of mind. (Astington, 2001, p. 2)

Acquiring a theory of mind allows a child to use his or her language and actions to manipulate and modify his or her environment. A Theory of Mind is more important in understanding the social world, but it is also important in language since language is a way for speakers to express their beliefs, wants, desires, and needs. If this is the case, then language should be thought of in more of a psychological, socio-pragmatic manner than the traditional speaker-hearer model.

Tomasello (2003) proposes that language acquisition is more simple and more reliant on TOM than traditionally thought. Tomasello contends,

If there is no clean break between the more rule-based and the more idiosyncratic items and structures of a language, then all constructions may be acquired with the same basic set of acquisitional processes—namely, those falling under the general headings of intention-reading and pattern-finding [...] The assumption is justified with the fact that the cognitive and social learning skills that children bring to the acquisition process are much more powerful than previously believed, and by the fact that the adult endpoint of language acquisition comprises other than a structured inventory of linguistic constructions, a much closer and more child-friendly target than previously believed (2003, pp.6-7).

Acquisition of a theory of mind develops along a continuum from infancy to adolescence; however, most child have developed a general theory of mind by five years old. Tomasello (2003) contends that infants begin to use words around the same time joint attention skills begin to emerge after the first birthday. If language acquisition is dependent upon socio-pragmatic situations where infants interact with caregivers and others and learn more about language and the meanings associated with situations, then infants must have the ability to understand their environment.

Precursors to a Theory of Mind

Joint Attention. One of the more powerful abilities an infant has according to Tomasello (2003) in order to learn language is the power of joint attention. Joint attention is more than simply an infant looking at a parent; rather, it is a process in which infants take many different types of cues and are able to use them to unravel some of the daunting aspects of language. Tomasello explains,

These behaviors are not dyadic—between child and adult (or a child and object)—but rather they are triadic in the sense that they involve infants coordinating their interactions with both objects and people, resulting in a referential triangle of child, adult, and the object or event to which they share attention. (2003, p. 21)

When children are able to be full participants in this referential triangle, they are able to communicate in an adult-like manner by making their intentions known and understanding the intentions of others. At this point (around 4-5 years old), children have a basic theory of mind that will allow them to participate in the referential triangle.

Eye Gaze and Joint-Attention. Acquiring a theory of mind has several developmental precursors that are acquired before a child develops a full theory of mind. Between the ages of nine and fourteen months, joint-attention behaviors—eye gaze, following, imitation and naming -

-begin to emerge. Joint-attention, the ability of an infant to be engaged by another person or object, is important for infants in developing a theory of mind as it allows them to engage in their social environment. Initially, infants are able to participate in their environment through the use of eye gaze. Eye gaze begins when the infant looks at the caregiver who is usually pointing to an object. When objects and caregivers are within the visual field, a child can get the caregiver's attention using, among other means, eye gazing. The caregiver is the means to the target that the child has in mind. At twelve months, the child is able to look alternatively at the target and the caregiver in an effort to make the caregiver aware of the target.

Butterworth (1991, 1995) maintains that eye gaze can be separated into three different categories. According to Butterworth (1995), infants have an ecological mechanism at nine months that allows them to see the caregivers eyes and follow the gaze to the first object in the line of sight. At twelve months, infants have a geometric mechanism whereby infants are able to pass over objects when following the caregiver's gaze to focus on the intended object. At eighteen months infants reach a representational stage, here they are able to look behind them to see an object that an adult is focused on. According to Butterworth (1995), eye gazing moves along a developmental continuum until infants have mastered this task and have the ability to engage in joint-attention through eye gaze in an adult-like manner. If a child does not have the ability to use eye gaze as a means of joint attention, then development of his or her language skills may be impaired or impeded.

Delgado et al. (2000) studied the effects of eye gaze and joint attention in infants. Their experiment indicated that fifteen month old infants were better able to locate objects within their visual field compared to objects outside of their visual field. Although by the time a child reaches eighteen months, he or she is able to locate objects both outside and within the visual

field, at fifteen months this proves to be a difficult task not yet mastered. The difficulties involved in locating objects and events outside of the visual field requires more ability than an infant has available at the time.

For infants to be able to use social information such as gaze direction, and pointing to locate an object outside the visual field requires increasingly mature spatial skills, an understanding of the intent of the communicative partner, and the cognitive ability to determine the precise location of the object relative to the body (Delgado, Mundy, Crowson, Markus, Yale, & Schwartz, 2002, p. 1718).

An infant's ability to understand and use eye gaze as a means of expression and inferring communicative intent is important for word development. Delgado et al. (2000) show that differences in six to eighteen month olds ability to engage and respond to joint attention are a predictor of language from eighteen to twenty-four month infants. An infant who engages in joint attention is more likely to form accurate word-object matches and is able to devote more of his or her mental capacity to reference objects or events in incidental or novel learning situations.

Social Referencing. Building upon the early joint-attention skills, social referencing is another way in which infants begin to understand the intentions of others. In social referencing, infants focus on adult facial expressions and tone of voice to make decisions regarding an event or object (Walden and Ogan, 1988). Infants as young as ten to twelve months use visual information and clues from the faces of their caregivers to make sense of situations that are novel or ambiguous (Sorce, Emde, Campos, & Klinnert, 1985). Klinnert, Campos, Sorce, Emde, and Svejda (1983) constructed a sequence where infants began to first develop the ability to recognize emotional expressions and then developed the ability to understand emotional expressions. As infants got older (10-13 months), they began to develop the ability to respond to emotional expression and to alter behavior in response to emotional expressions. As adults, we use the ability to understand others' emotion as a means of understanding their beliefs and

desires. For example, at a sporting event one can easily tell which team an individual wants to win by watching his or her face for emotional expressions when something (an interception, home run, or goal) happens within the game. Infants, much like adults, begin to use emotional responses in their own decision making process.

To test the theory of social referencing, Source et al. (1985) used a “visual cliff” where infants believed that a deep end existed in a glass covered space. All seventeen of the infants tested looked at their caregivers to see if they could proceed to the *deep end* to get a toy that was there. When caregivers gave a face that indicated fear, all seventeen infants stopped and did not enter the *deep end*. When the caregivers gave happy or supportive emotional faces, fourteen of the nineteen infants went across into the deep end. In another study, Hornik, Risenhoover and Gunnar (1987), showed that children are more likely to play with a novel toy if a caregiver showed a positive emotional response to the toy.

In another study, Repacholi and Gopnik (1997) had fourteen and eighteen month old infants had to choose food based on emotional cues from caregivers. When the infants tasted the food, broccoli or crackers, ninety-three percent of them preferred the crackers. Caregivers used emotion to express their like or dislike of the two foods; however, unlike the infants, the caregivers expressed a like of broccoli and reacted negatively toward the crackers. Despite the fact that the infants preferred the crackers, seventy-three percent of the eighteen month olds offered the caregiver her favorite food rather than the child’s. The fourteen month old infants offered the caregiver the broccoli fifty-six percent of the time. While the fourteen month old offered the caregiver’s favorite food over half of the time, the eighteen month old infants in the study demonstrated that they not only recognized their caregiver’s emotional responses, but they also based their own decisions on the emotion responses from the caregivers. The fourteen

month old infants recognized the emotional expressions, but they failed to change their perspective of the situation and offered the food that they liked the best.

During the early stages of joint-attention development and social referencing, infants are also imitating what they see others around them doing. At an early age, infants begin imitating eye gazing to inform their caregivers about their intentions regarding an object. The redundancy of seeing the facial expressions numerous times in many different contexts allows children to develop overlapping representations and fill in missing information when they encounter a new or ambiguous event. Children are able to gain an understanding of how adults use the various facial expressions to indicate how they feel about a particular event. By observing and studying adult's facial and vocal expressions, infants are able to imitate them in an effort to make their needs, wants, desires, and feelings known. Children are better able to control their environment by understanding the intentionality of others and making their intentions known.

Joint attention and intention reading skills allow children to understand the intentions of a particular utterance. Once children can understand these utterances in relation to the speaker's intentions, then they are ready to become active participants in social and cultural activities. Tomasello (2003) claims that children are motivated to use their joint attention and intention reading skills because they desire to communicate with others and they want to imitate others (p. 31). Some of the early non-language gestures indicate that infants are able to communicate despite the lack of language relying solely on their socio-cognitive abilities. Tomasello argues that gestures are the first signs of communicative intentions whereby the infant is able to use joint attention skills to focus a caregiver to an object or event and the infant can make his or her communicative intent known to the caregiver in regards to the object. Later in the one word stage of the language acquisition process, children will begin to learn holophrases, one word

utterances, which will allow the caregiver to understand the child's communicative intent. At this stage, the child learns to use intonation, gestures, eye gaze, and other linguistic and non-linguistic skills to make his or her intentional state known. The acquisition of these skills is a gradual one that moves along a developmental continuum, and as such, children will be more active, at least in a more adult-like manner, in cultural and social situations as their linguistic abilities and joint attention and intention skills are used together in communication. Acquiring a theory of mind and using it to understand intentions allows children also more fully participate in their environment.

Cultural and Social Learning One of the cultural and social activities that children engage in at an early age is pretend play. Pretend play is another tool that can help children acquire a theory of mind. Garvey (1990) maintains that pretend play is the “voluntary transformation of the here and now, the you and me, and the this or that, along with any potential action that these components of a situation might have” (p. 82). While some believe that Garvey's definition of pretend play is best modeled in an on-line representation, others argue that pretend play is a metarepresentational matter. In the on-line theory of pretend play, Gordon and Barker (1994) contend,

In pretense [children] accept an initial premise (or premises) -- for example, that certain gobs of mud are pies. By combining the initially stipulated premise with their existing store of beliefs and calling upon their reasoning capacity, they are able to obtain answers to questions not addressed in the initial premise. (p. 171)

In Gordon and Barker's theory, children would accept an initial premise and no way to distinguish whether or not the premise was grounded in pretense or if it was reality. In this account, children would be unable to make determinations as to what is reality and what is pretense. Gordon and Barker would have children take premises used in pretense and believe

them just as they would reality. Leslie (1987) argues that children are able separate pretense from reality by “quarantining” or “making off” premises and beliefs gained from pretense situations. He claims that while children are engaged in pretense, they have the ability to “mark” these representations and beliefs in a manner that the representations do not have the same ability to interact with other premises, beliefs, and representations (p. 417). By establishing a quarantine for pretense in Leslie’s account, children are able to make the necessary distinction between reality and pretense.

Unlike Gordon and Barker, Lillard (1993) argues that in order for there to be pretense, there must be (1) a pretender, (2) a reality that is pretended about, (3) a mental representation of the pretense, (4) a projection of the mental representation, (5) a child must have an awareness about the reality and the pretense, and (6) a child must be pretending intentionally. A scenario in which a child may engage in pretend play may occur after an event that remains with a child. For example, when a child goes to the doctor, he or she may use the experience as the basis of pretend play in the future. A child may take a doll and say that the doll has to go to the doctor because it is sick. In the pretend play situation, the child may take on the name and role of the doctor and assign the doll a name and an ailment that is similar to what the child originally went to the doctor for. In pretending about the doll’s visit to the doctor, the child is aware that the doll is representing a girl and the child a doctor, and the child is aware that the pretense is not the same as the reality. Children often take objects and pretend that they are other objects (a toy screwdriver becomes a shot for the doll) and do so with awareness that the objects are a mental representation of another object and not the actual objects. Lillard’s account of pretend play relies on metarepresentations of reality; therefore, marking and quarantining are a built in part of the processing that occurs in pretense.

Pretend play is important in the theory of mind acquisition because it allows children to begin to understand that thoughts, not realities, are what guides human behavior. While children are not having to completely understand the mental states of others, they are having to understand that their thoughts are guiding their actions. Moreover, a child begins to develop necessary attributes critical for theory of mind through pretense. Bergen (2002) maintains,

Pretend play requires the ability to transform objects and actions symbolically; it is furthered by interactive social dialogue and negotiation; and it involves role taking, script knowledge, and improvisation. Many cognitive strategies are exhibited during pretense, such as joint planning, negotiation, problem solving, and goal seeking. (par 2)

Pretense, then, is an important part of developing a theory of mind as it usually requires conversation through social engagement. When children begin to pretend with other people, they are having to make their intentions known to others and become aware of other's intentions as well.

Development of a Theory of Mind

The Intentionality Model. As language is developing and children are becoming more aware of their own and others' needs, wants, desires, and feelings, children begin to take a more active role in their environment. Rather than being passive participants in their environment, children begin to have the desire to make their intentions known in an effort to control their environment. Making their intentions known requires that a child have the ability to engage in joint-attention and social referencing to make their needs, wants, desires, and feelings known to another person.

The intentionality model takes into account the many developmental factors that are emerging and developing along with language. In looking at language development from this prospective, Bloom and Tinker argue that there are consequences to be explored when the child

becomes the agent from which language is learned and is no longer looked upon as a passive experiencer of language. In a theory that recognizes the agency of the child, a child does not merely take in language as an input separate from other aspects of cognition and development and begin to apply the language to social situations or for pragmatic reasons. On the contrary, Bloom and Tinker contend, “Language depends on and emerges out of a social nexus of closely connected developments in cognition, emotion, and social interaction in the first three years of life” (2001, p. 6). It is only through combining these different processes that children are able to begin to use language in a more adult like manner.

The other consequence, according to Bloom and Tinker (2001), of agency of a child is that we also have to consider the intentionality state of the child. Bloom and Tinker explain intentional states.

Intentional states include representation of elements, roles, and relations that are about objects, events, and relations in the world. They are constructed under psychological attitudes of belief, desire, and feeling toward them and are expressed by the actions, words, and emotional displays of everyday behaviors. Although unobservable and hidden, they are not mysterious, because the child constructs and owns them. And they are not mysterious to other persons either, because the child acts to express them. (2001, p. 6)

The two principles behind the intentionality model are effort and engagement. When effort and engagement intersect, according to the model, the combination of the ability to use language and the need to do so causes language to emerge as a result of having both the ability and the need to speak. By itself, however, the effort that a child puts forth in constructing a new intentional state would not necessarily necessitate that the child use language. The social and emotional need to engage in the environment requires that the child have the ability to communicate his or her intentional state, which relies on the child's efforts to create a new intentional state.

Effort, for the purpose of the model, is the cognitive processing and work that the child must go through in order to construct a new representational state. The child must use his or her limited cognitive resources to recall stored knowledge and to process new stimuli in the environment in the context of, and perhaps in conjunction with, the old representation. Children then have to either interpret or express their new representation based upon their needs. In expressing their new intentional state, children must hold the new intentional state in memory, recall the various phonological units that make up words, put the words together, and then finally put a sentence together. Interpreting these new intentional states requires that a child stores the new stimuli in the environment into working memory and compares the new stimuli to previous experiences that have been recalled, thereby constructing a new intentional state.

While this processing is happening in response to new stimuli, the child also has to consider the social aspects of what is relevant in constructing a new intentional state. How a child engages himself into the world around him helps him to determine what is relevant and important. In determining the relevance of a particular object, event, or person, the child is able to, with cognitive effort, construct new intentional states that are not based upon previous representations alone. The new intentional state, because of the child being engaged in his current world, is based upon prior knowledge that has been reconstructed to fit in a more contextually appropriate way in the current setting.

These two cognitive processes, effort and engagement, occur simultaneously more often than not. The problem, as mentioned before, is that children have limits on their cognitive processing abilities. Children actively engaged in their new world will not encounter situations that are identical to their previous experiences, representations, and intentional states. When children are unable to accommodate for their surroundings by recalling a representation that

matches their environment, they must process the new aspects of their environment and construct new intentional state. When effort and engagement begin to share the cognitive processes required to produce a new intentional state, tension between the two causes development and language to occur. Bloom and Tinker argue,

The general developmental processes emerge out of an essential tension between the child's engagement in new encounters and the child's effort to connect what is already known to the new information and contradictions presented in such encounters. It is the sort of dialectical tension that is, in fact, required for all of human development. (2001, p. 17)

Much like Piaget's disequilibrium, children will make new representations and intentional states when there are two competing forces that are unable to accommodate for the events, people, and objects in the environment.

FALSE Belief. A child is able to make his or her intentions known and is able to understand the intentions of others as long as those intentions are based in a context that a child sees as being reality. When children are put in situations where an action does not match their expectation, they do not perform well when asked to predict what the result of an action or event will be. Around the age of four, this begins to change, and children are able to better predict what will happen in a given situation. For example, if a person goes to the refrigerator to get a drink, then a child will predict that when someone wants a drink, then he or she will go the refrigerator to get one. Children also understand emotions associated with accomplishing and failing goals (Yuill, Perner, Pearson, Peerbhoy, & van den Ende, 1996). The ability to predict events that are counter to their beliefs is difficult for children. For example, when a child sees someone crying, the child will think that the person is sad if the child has never seen anyone cry as a result of being happy. The ability to distinguish, interpret, and predict an event that counters a child's beliefs can be shown in the false belief test.

In Wimmer and Perner's (1983) false belief test, they told children a narrative using dolls and toys in which a boy sets down his chocolate and goes outside to play. While the boy is outside, his mother moves the chocolate to a new place. When the boy returns, he is hungry and wants chocolate. Wimmer and Perner asked children where the boy would go and look for the chocolate. The three-year-olds in the study said that they boy would go to the new place for the chocolate. Five year-old children, however, predicted that the boy would go back to the old place where the chocolate was placed by the boy since the boy is unaware that his mother moved the chocolate. Developing the ability to distinguish false-beliefs allows children to further understand the intentions of others. This understanding of others will enable a child to communicate more effectively and more adult-like as the child continues along in the language acquisition process.

Communication is dependent upon not only what the speaker says, but also what the speaker really means by what he says. This being the case, the acquisition of language is much more dependent on general cognitive processes than previously thought. Language, then, should be viewed in conjunction with cognition in terms of how it is acquired since certain aspects of language are absent until particular cognitive abilities are present.

Referring expressions, in particular, by their complex nature, present unique challenges to children who do not have all of their cognitive abilities present yet. Referring expressions require a child to use his or her limited cognitive abilities to (1) figure out what a speaker's communicative intent is, (2) solve ambiguous references, and (3) choose what the referent is referring to when there is more than one possibility for the referent. Overcoming these problems posed by referring expressions is requires online processing that may make it difficult for a child to express his or her complete communicative intent when using referring expressions.

Gundel (2008) explains that children must use TOM when using referring expressions because they must take into account the other person's mental state. She contends that children must assess the cognitive status of the referring expression and how the child wants the hearer to interpret the referring expression. In addition, she asserts that children must also assess how much information is relevant and sufficient for the hearer to understand the child's intended meaning. These two processes rely on a child's ability to determine what the hearer knows about what is being referred to, and these two processes rely heavily on a child's TOM.

Wittek and Tomasello (2005) explored young children's ability to use referring expressions depending on what the listener knows or is attending to. They found that 2.5 – 3.5 year old children were strongly influenced by the listener's knowledge. If the listener knew about a target object they were likely to use null references ("On the shelf") but when asked more general questions they tended to use lexical noun ("A broom"). However, younger two-year olds did not make these distinctions.

Few studies have explored referring expressions for developmental differences or context differences. Context can be described in many ways, including the dynamics between participants and the representational difficulty of the task.

Situational-Discourse-Semantic (SDS) Model

Figure 1 profiles the three continua of the Situational-Discourse-Semantic (SDS) Model (Norris & Hoffman, 1993, 2002). The SDS is a three dimensional model that describes the representational, organizational, and referential characteristics of events. The Situational context refers to what is being represented and is distributed along a continuum from attention to self as an object (i.e., egocentered) through increasingly more abstract and decentered contexts. This context is consistent with the findings of Piaget (1955, 1962) and the gradual decentering of

thought between birth and 7 years of age, as well as Nelson's (1986) description of the progressive change from Mental Event Representations to Linguistic Event Representations during preschool development. In these models, thought becomes increasingly dependent upon internal mental representations with less dependence on sensory-motor input. In the SDS model, the first five levels are contextualized, meaning the concepts represented are present or at least suggested in the immediate environment (i.e., oneself, real objects, pictures or toys, abstract objects). The five higher levels are decontextualized, meaning the concepts are created from words with no objects or events present in the situation to support the talk. The decontextualized-egocentered level refers to recounting of personal experiences or events, and each successive level represents increasing more decentered references (i.e., observed events, rules or procedures, written or oral narratives or exposition, and hypothetical concepts such as black holes or metamorphosis).

The second dimension, the Discourse context, refers to the organization present within the event. This is distributed along a continuum of brief, transitory events (i.e., discrete) and progresses through events organized by topic, time, causality, intentionality, successive series of events, parallel events, and finally complex interactive events. Each level subsumes organizational knowledge of the levels below. The third Dimension, the Semantic context, refers to how shared reference is made within the event. This continuum ranges from reactions and reflexive responses through increasingly more intentional communications that require greater perspective taking and abstraction, culminating in metacognitive-metalinguistic reference. The SDS Model is designed to be used both developmentally and descriptively. The developmental sequences of a range of behaviors, including language, play, storybook reading spelling, reading, math, motor skills, phonological awareness, and social development have been distributed along the 3 SDS continua (Norris, 1998; Norris & Hoffman, 2002). The

	SITUATIONAL <i>Representing</i>	DISCOURSE <i>Organizing</i>	SEMANTIC <i>Processing</i>
DECONTEXTUALIZED [Words and Ideas, No Visual Support]			
X	Logical Hypothetical Knowledge	Interactive <i>(multiple topics interwoven)</i>	Meta-knowledge <i>(conscious knowledge)</i>
IX	Symbolic Imagined Experience	Complex <i>(parallel perspectives)</i>	Analogy <i>(associate old to new)</i>
VIII	Relational Rules and Directions	Compound <i>(2 or more episodes or topics)</i>	Evaluation <i>(opinion, judgment)</i>
VII	Decentered Observed Experience	Complete <i>(compare/contrast/appraise)</i>	Inference <i>(prior knowledge)</i>
VI	Egocentered Own Past Experience	Plan or Purpose <i>(problem/solution)</i>	Interpretation <i>(deduce from cues)</i>
CONTEXTUALIZED [Visual or Multisensory Support]			
V	Logical Low Support Sensory Cues	Reactive Sequence <i>(cause/effect)</i>	Attribution <i>(characteristics, emotions)</i>
IV	Symbolic: Replicas, Pictures	Ordered Sequence <i>(time/procedures)</i>	Description <i>(action relationships)</i>
III	Relational Event-Related Action Real Objects	Listing <i>(topic maintained)</i>	Labeling <i>(naming, imitation)</i>
II	Decentered Attention or Action: Objects or People	Collection <i>(associated topics or actions)</i>	Indication <i>(points, gestures, sounds)</i>
I	Egocentered Own Body: Direct Sensory Input	Discrete <i>(isolated actions or facts)</i>	Reaction <i>(reflexive response)</i>

Figure 1. The SDS Model describes representational, organizational, and referential aspects of events. Norris, J.A. & Hoffman, P.R. (1993). Whole language intervention for school-age children. San Diego, CA: Singular Publishing Group.

developmental characteristics and age ranges at which children begin to represent, organize, and

refer within these domains can be discerned from these developmental tables. The model also can be used descriptively to explain the difficulty levels of an event, how to modify one or more dimensions of the event for different learners, or to describe task demands versus actual performance.

This purpose of this study is to examine how three, four, and five year-old children use referring expressions across increasingly more decontextualized tasks as defined by the SDS (Norris & Hoffman, 1993, 2002) situational continuum. The data will be examined for similarities and differences in the frequencies and types of referring expressions used between contextualized and decontextualized levels, tasks, and age groups.

METHODS

Participants

The participants in this study included 36 children who were between the ages of 3;4 and 5;6. The three-year-old participants (4) were enrolled in a local preschool and were selected at random to include an equal number of male and female participants. The four-year-old participants (12) and the five year-old participants (20) were also selected to represent an equal number of male and female participants. The four and five year-old participants were selected from three elementary schools that had pre-kindergarten (pre-K) programs. All of the potential participants spoke English as their first language, and English was the primary language spoken in the home. Twenty of the children were low SES as determined by eligibility for free or reduced lunch. An attempt was made to recruit 20 three year-olds. However, day care providers were reluctant to allow a male examiner to interact with the children, and only four could be recruited. Despite the small numbers, the three year-olds were included to determine if three year-olds could complete all tasks along the continuum and whether there were indications that referring expressions were used differently from older subjects.

Interviews with the classroom teachers were conducted and classroom observations made to informally assess the developmental level of the potential participants. Participants in the study were identified as being in the average range compared to other children in the classroom and were classified as having normal sensory and motor skills as identified by vision, hearing, and motor skills screenings. Additionally, the *Test of Nonverbal Intelligence: A Language Free Measure of Cognitive Ability, Second Edition* (TONI-2) was administered to potential participants (Brown, Sherbenou, & Johnson, 1990). Participants whose performance fell within the average range, within 1.5 standard deviations from the mean, were selected as

Table 1

Summary of Participants in Study

Participant Number	Age	Gender	Race	School	SES
1	5;1	M	Caucasian	1	Low
2	5;1	F	African-American	1	Low
3	5;4	F	Caucasian	1	Low
4	5;2	M	African-American	1	Low
5	5;2	F	Caucasian	2	Middle
6	5;3	F	Caucasian	2	Low
7	5;5	M	Caucasian	2	Middle
8	4;11	M	African-American	2	Middle
9	4;9	F	African-American	3	Low
10	4;7	F	Caucasian	3	Middle
11	5;4	M	Caucasian	3	Low
12	4;9	M	African-American	1	Middle
13	5;5	F	Caucasian	2	Middle
14	5;4	F	African-American	1	Low
15	4;9	M	African-American	2	Low
16	4;11	M	Caucasian	3	Low
17	5;4	F	African-American	2	Low
18	4;6	M	African-American	2	Middle
19	5;5	F	Caucasian	1	Low
20	5;1	M	Caucasian	1	Middle
21	5;1	M	African-American	3	Low
22	4;11	M	Caucasian	2	Low
23	5;3	F	Caucasian	3	Middle
24	4;11	F	Caucasian	1	Low
25	5;0	M	African-American	1	Middle
26	5;6	M	Caucasian	3	Low
27	5;2	F	African-American	3	Middle
28	4;11	F	African-American	3	Low
29	5;1	F	Caucasian	3	Low
30	5;4	F	Caucasian	2	Low
31	4;8	M	Caucasian	3	Low
32	4;11	M	African-American	3	Low
33	3;4	F	Hispanic	4	Middle
34	3;7	M	Caucasian	4	Middle
35	3;9	F	African-American	4	Middle
36	3;10	M	Caucasian	4	Middle
Mean	4.8	-----	-----		
(SD)	0.7	-----	-----		

participants. Participant characteristics are profiled in Table 1.

Consent for Participation. Permission to collect data in the classrooms was obtained from the appropriate authorities administering each program. Parental consent for participation forms (Appendix B) were sent to parents or legal guardians of each child explaining the project and extending an invitation to participate in the research. Participants who returned a parental consent form were added to the pool of possible participants.

Procedures

The purpose of this study was to observe how children use the referring expressions across a continuum of representational tasks. The representational tasks focused on a familiar event for all of the children, the bedtime routine, but the tasks ranged from talking about personal events and bedtime routines to narratives which required the participants to respond to a problem and propose solutions. The procedures for the tasks were recreated from Smith's (1999) research on prekindergarten children's performance on representational tasks (Appendix C). These representational tasks were organized around the SDS (Norris & Hoffman, 1993, 2002) Situational continuum. The seven tasks were used to determine how participants would use referring expressions in both contextualized and decontextualized situations across varying levels of the SDS Model. The first three tasks were contextualized along the relational, symbolic, and logical levels of the model. The other four tasks were decontextualized along the egocentered, decentered, relational, and symbolic levels of the situational context on the SDS Model. Participants were video recorded during sessions, and it took approximately thirty minutes for participants to complete the seven representational tasks.

Task 1. High Support Enactment, SDS Level III: Contextualized Relational. The first task was to have participants pretend to get ready for bed using props (a plastic tub for a

bathub, a toothbrush, a video, blanket and pillow, and night clothes) and to talk about what it is they were doing to get ready for bed. In this task, the participants referred to objects and activities in a highly contextualized environment with familiar objects in full view to both the participant and researcher were both familiar with.

Task 2. Picture Sequencing, SDS IV: Contextualized Symbolic. The second task required the participants to arrange pictures representing a bed time routine in sequential order. This task required participants use symbol representations (i.e., illustrations) to describe a bedtime routine that was similar to the participant's own routine. The situational task was familiar enough for participants to take the pictures and place them in order that best represented the sequence one follows in his or her bed time routine. After the photos were arranged, the participant was asked to describe the events and actions in each photo.

Task 3. Low Support Enactment, SDS V: Minimal Props, SDS V: Contextualized Logical. In this task, the situational context was less contextualized than the previous two tasks. Participants were introduced to a puppet dog and the dog's little doll, which was the same race and gender of the participant. The participant was then asked to show the puppet dog how to get its doll ready for bed using only a bar of soap and a blanket. The use of fewer objects in this task relegated the participant to use language to create and refer to the majority of objects and events occurring within the bedtime routine.

Task 4. Verbal Script, SDS VI: Decontextualized Egocentered. In this task, all props were put away, and the participant verbally had to tell a frog puppet who wanted to be a real child how a child would get ready for bed. When a participant would only provide one or two acts of the bedtime routine, neutral prompts (i.e., tell me more; what else should he do?) were used to solicit more information.

Task 5. Story Retelling, SDS Level VII: Decontextualized Decentered. In this task, the participants were asked to retell a story that was not based on the participants own experience. Rather, the participant retold a story that he or she had just been read. The participant experienced the story in a contextualized, visual manner and then was required to recall the events exclusive of the storybook context.

The storybook used in this task was *Bedtime Cat* by Reiser (1991). The participant sat next to the researcher during the story reading, and the researcher identified two important, specific scenes in the story to ensure the participant was aware of both of these scenes. In one scene, the little girl in the story was unaware that her cat had run off, and in the other scene, the little girl found her cat in her bed where the cat's ears were the only thing visible. No other prompts or assistance was provided to the participant. After the story was read, it was placed out of the child's sight, and the child was asked to retell the story to the dog puppet that had "slept while the story was being read and did not get to hear the story." The puppet dog was removed from underneath the blanket and the pillow, and the participant retold the story to the puppet from memory. If a participant only recalled an event or two from the story, neutral prompts were given to solicit additional information.

Task 6. Group Routine, SDS Level VIII: Decontextualized Relational. In this task, it was explained that the way one does something at home is different than the way in which things are done at school. An example of how lunch is prepared at home versus school was given. A hypothetical situation was explained to participants where the participant and his or her classmates had to stay overnight at school because of a bad storm. Participants had to use their knowledge of the bedtime event to propagate a routine for their classmates who would be directed by their teacher. The examiner asked the participant to explain how the group would get

ready for bed under the new circumstances. As the participant began to explain the rules, the researcher responded with neutral comments to indicate he was listening. When the participant did not give any rules, a neutral prompt was given to elicit more information.

Task 7. Story Generation, SDS Level IX: Decontextualized Symbolic. In this task, participants were asked to generate an imaginary story and were provided a story starter (an initial sentence used to prompt a story) by the researcher. The researcher informed the participant that the story was to be based on a same-sex fictitious character (Carl or Carla) who experienced a departure from his or her normal bedtime routine. The story was based on the researcher starting the story by saying, "*One night when it was time for Carl (Carla) to go to bed...*" The researcher again responded with neutral comments to indicate he was listening, and the child was given up to three neutral prompts to elicit the participant to begin his or her story. If a participant stopped telling the story, the researcher again offered neutral prompts to encourage further details.

Data Coding

The language samples obtained from the seven representational tasks were transcribed from the video recordings. Comments indicating points, gestures, eye contact, or other contextual factors were noted as needed to clarify the reference of a comment. Twenty percent of the language samples were transcribed by a second recorder for reliability. Agreement between transcribers was 98%.

The transcripts were used to generate categories of referring expressions. Each language sample was examined for the occurrence of referring expressions and each reference identified according to characteristics such as transparency of reference and level of shared knowledge about the referent. From these descriptions, 10 categories of referring expressions

emerged that represent different types of referring expressions used within the tasks.

I. Self Reference. This category described a self-referenced, clearly established referring expression. The participant referred to himself or herself in the first person, and the reference was made clearly directed to the researcher by the participant.

Examples: "I get a brush," "I brush my teeth," "I am brushing my teeth with my toothbrush," "I'm getting my t-shirt."

II. Cohesive Tie. The second category included a referring expression as a clear cohesive tie to a previously verbally established reference.

Example: "The boy is getting ready for bed. Then he's about to wash his hair in the bathtub."

III. Contextualized Pronoun or Article. The third category incorporated referring expressions that clearly referenced a contextualized pronoun or article. In this category, all of the examples occurred when the participant referred to an object that was within sight or reach of the participant and the researcher.

Examples: A participant said, "you get that," then picked up the bowl and pretended to eat (the researcher understood *that* referred to the bowl.). Another participant explained, "I have to get the soap" and then reached for the soap that was being used as a prop.

IV. Contextualized Pronoun or Article including an Action Reference. The referring expressions described in this category were similar to the third category, but here, an action reference was included.

Example: "Um Polly, first you do this" (*this* referred to rubbing soap on the body parts of a doll). The participant was telling the puppet how to bathe a doll.

V. Clearly Referenced if Pictures or Objects are Visible. This category distinguished referring expressions that were clearly referenced if pictures or objects were visible to both the researcher and the participant, but the object was not specifically named first. Example: "He's about to wash his hair in the bathtub." The use of the pronoun was clear to both the researcher and the participant because the object (the doll) was visible to both the researcher and the participant.

VI. Reference to Recurring Event: This category contained references to a recurring event rather than the object.

Example: "I take a bath."

VII. Implied Reference to General Knowledge or Idiomatic References. This category contained referring expressions that are commonly used even though they may violate principles of cohesion to refer to an object or action ("I have to go to *the* bathroom" even though the specific bathroom is unknown to the listener). This category also captured the examples that use idiomatic language where a referring expression was based more upon using a set phrase to refer to something rather than referring to something with any degree of specificity.

Examples: "He is going to get the soap and wash his hair, and wash his face off, and wash everything, "She gets under *the* sheets," "I have to go to *the* bathroom."

VIII. Generic Pronoun with no Particular Reference. This category described referring expressions that had no reference within the context of the task or the referring expression was given in the wrong perspective.

Examples: "You eat your supper." The participant is not referring to anything

in particular based on the objects or pictures that are available to the participant.

"Well, you have to get, you have to buy a shelf for 200 dollars." The reference to purchasing a shelf was a random reference that did not specifically refer to anything in the context of the task. "We will maybe um you shouldn't go outside cause *it* was a big storm outside," (Wrong Perspective).

IX. Shared Unknown Referent. This category contained expressions where an unknown shared referent is understood from the context. In this case, both the researcher and the participant know what the participant is referring to despite the reference having not been introduced in previous conversation and not being immediately available within sight of the researcher or the participant. This category also included shared unknown referents where referring expression was tense driven, and others where the referring expression was contextualized when it should have been decontextualized.

Examples: "And then, then she heard something drippin' down." *Something* in this case is rain, and both the researcher and participant knew this was rain despite the word *rain* not being previously used because the participant was describing a storm.) "And she said it was just the thunder and lightning," (Tense Driven *the*).

"Okay everybody lay on your mats. And get your blankies um in your cubbie. And cover up good,"(Contextualized the Decontextualized).

X. Weakly referenced or Omitted Articles and Pronouns. This category described instances where a more generic reference to an object was made when a stronger form would have been more appropriate. The category also contained examples where a pronoun or article was omitted.

Examples: "I get *a* brush" (then the participant picked up a toothbrush). The participant should have used an article more befitting of the context, in this case *the*, since the brush was highly contextualized and was visible to both the researcher and the participant. "Jumped up." The participant omitted the pronoun initially, and when the participant was asked what she meant since the context did not allow the researcher to account for the lack of a reference, the participant responded, "she jumped up" making the reference clear. "Storm went away" "and then you have bedtime story."

The referring expressions produced in each of the tasks were examined and placed into one of ten categories. A data analysis form profiling the different representational tasks and the categories was used to categorize and record each occurrence of a referring expression (Appendix C). Category totals were summed for each participant by task.

Interrater Reliability

Coding reliability for the data was achieved by having a second person independently code 25% of the data. The nine participants selected at random included 1 three-year-old participant, 3 four-year-old participants, and 5 five-year-old participants. The second coder was given nine of the coding sheets, and the categories were explained to the second coder. Measuring interrater reliability was established by using the joint probability of agreement method whereby the total number of agreements was divided by the total number of agreements plus the disagreements. An interrater reliability overall score of 93% was achieved for the coding of the referring expressions present in the data (see Table 2).

Data Analysis

For this study, qualitative analyses were used. The responses were examined using

descriptive cross tabulations in examining the number of referring expressions in a given category for a particular task, and then these results were expressed as a percentage of the overall count for the group. These results were also explained using descriptive, non-parametric statistics by applying Pearson's Chi-Square to examine participant performance across the tasks, categories, and the contextual versus the decontextualized nature of the task across the three different age groups.

Table 2

Interrater reliability

Participant	Total Agreements	Total Opportunities	% Agreement
Participant 3	51	54	94%
Participant 9	39	43	91%
Participant 12	46	50	92%
Participant 17	36	39	92%
Participant 21	25	26	96%
Participant 25	29	32	91%
Participant 29	38	41	93%
Participant 32	30	32	94%
Participant 34	34	37	92%
Total	328	354	93%

RESULTS

The purpose of this study was to examine how children aged three, four and five used referring expressions across a continuum of representational tasks. Language samples elicited by the tasks contained more than 1500 referring expressions that were then categorized into different categories of referring expressions.

The subjects of this study included 4 three-year-olds, 12 four-year-olds, and 20 five-year-olds. The data contained more referring expressions (REXs) for older subjects because of group size differences resulting in a total of 164, 523, and 816 instances for the three groups. The three-year-old participants produced an average of 41 REXs per participant (range 25 to 50), the four-year-olds produced 43.6 REXs per participant (range 37 to 63), and the five year-olds produced 41.8 REXs per participant (range 31 to 62) (see Table 3).

Table 3

Referring Expressions in Different Age Groups

Group	Average Number of REXs	Range	St. Deviation
3 Year-old	41.0	25-50	10.8
4 Year-old	43.6	27-63	12.1
5 Year-old	41.8	31-62	8.34

These totals were used to calculate percentages for each category of REX (i.e., the number of referring expressions within the category out of the total number for that age group). When tasks were examined, the same finding was observed. Thus, while the numbers increased because of the increased number of participants, the percentage of REXs was generally consistent across ages and tasks. That is, the percentage of REXs for Task 1 was 15.9%, 19.5%,

and 18.7% for ages 3-5; Task 3 was 15.9%, 14.0%, and 14.6%, and so forth. Table 3 shows the REXs for the different age groups. The distribution of responses revealed both developmental similarities and differences.

Table 4 profiles the categories of referring expressions produced by task and age group. The table shows the number of referring expressions in a given category for a particular task, and the percentage that number represented of the total number of referring expression for that age group. For example, in Task 3, Category 4, the three-year-old group produced 12 referring expressions, or 7.3% of the three-year-old corpus. Examination of the table reveals that within each age group, each task contained more than 10% of total responses for a particular age group but under 20% of the total responses. This suggests that referring expressions occur with similar frequency whether the task is highly contextualized or maximally decontextualized.

While there was some variation, no large differences were shown across ages for any task. When tasks were examined across ages, Task 4 (Decontextualized Verbal Scripts), Task 5 (Decontextualized Story Telling), and Task 6 (Decontextualized Group Routine) produced the lowest numbers of REXs. Task 1 (Contextualized Maximum Props) elicited the highest number, and Task 2 (Contextualized Picture Sequence) elicited either the second or third highest across ages. While Tasks 4 through 6 showed a trend toward fewer REXs with increasing decontextualization, Task 7 (Decontextualized Story Starter) showed slightly higher levels, comparable to Task 3 (Contextualized Minimum Props).

When the categories of referring expressions were examined across tasks and ages, consistencies in patterns were revealed. Across tasks, the percentage of occurrence was relatively consistent across ages. For all ages, a high number of REXs occurred for categories 3 (Contextualized Pronoun or Article), 4 (Contextualized Action Reference), and 5

(Contextualized Picture or Object). Across ages, Category 3 (Contextualized Pronoun or Article) occurred most frequently in the decontextualized tasks (Tasks 5, 6, 7) but also occurred within all tasks with lower frequency. In contrast, Category 4 (Contextualized Action Reference) occurred with the highest frequency for Task 3 (Contextualized Minimum Props) and 4 (Decontextualized Verbal Script), with no or very low occurrence in the decontextualized tasks 5, 6, and 7. Category 5 (Reference to Pictures or Objects) was predictably highest for Task 2 (Contextualized Picture Sequence) across ages, and second highest for Task 1 (Contextualized Maximum Props). They occurred with less frequency for all ages in Task 3 (Contextualized Minimum Props) and did not occur at all or rarely for any of the decontextualized tasks (an expectation since pictures and objects by definition do not support the talk).

The REXs used in Category 1 (Self-Reference) make up approximately 5% of all the REXs produced across all ages. The contextualized versus the decontextualized tasks had an effect on the number of REXs produced for Category 1 (Self-Reference). The participants produced the REXs found in Category 1 (Self-Reference) 69% of the time in the contextualized tasks and only 31% of the time in the decontextualized tasks. Three-year-olds used REXs in Category 1 (Self-Reference) 63% of the time in contextualized tasks, four-year-olds used REXs 75% of the time in contextualized tasks, and five year-olds 66% of the time in the contextualized tasks versus the decontextualized tasks. Closer examination of the REXs in Category 1 (Self-Reference) reveal that over half of the REXs (56%) were found in Task 1 (Contextualized Max Props). Overall, the number of REX's found in Task 1 (Maximum Props) and Task 3 (Minimum Props) make up 69% of the total number of REXs found in Category 1 (Self-Referenced).

In Category 2 (Cohesive Ties), REXs placed here made up roughly 10% of the total number of REXs across all ages. Over 90% of the REXs produced were within the

decontextualized tasks. For the most part, this held true for the age groups as well. In the three groups, 87% of REXs produced by the three-year-old participants were in the decontextualized tasks. The majority of the REXs in Category 2 (Cohesive Ties) were found in two decontextualized tasks. Task 5 (Decontextualized Story Telling) contained 44% of the REXs placed into Category 2 (Cohesive Ties). Task 7 (Decontextualized Story Starter) had an additional 43% of all the REXs produced for Category 2 (Cohesive Ties). Whether the task was contextualized or decontextualized once again influenced the number of REXs produced in a particular category.

The REXs in Category 6 (Reference to a Recurring Event) were used more frequently in the contextualized tasks versus the decontextualized tasks. Task 1 (Maximum Props) contained almost one-third of the overall total of the REXs in Category 6 (Reference to a Recurring Event), but the responses were found across all tasks for all ages with the exception of Task 7 (Decontextualized Story Starter) for the four-year-olds.

The REXs in Category 8 (Generic Pronoun with no Particular Reference) made up close to 5% of the total number of REXs produced overall. However, there were differences in the ages. The REXs in Category 8 (Generic Pronoun with no Particular Reference) produced by four-year-olds was only 2.5 % of the total REXs produced. Comparatively, the three-year-olds and five year-olds produced over double the number of REXs percentage-wise, 5.5% and 6.1% respectively, within Category 8 (Generic Pronoun with no Particular Reference). Approximately 65% of all the REXs in Category 8 (Generic Pronoun with no Particular Reference) were found in the decontextualized tasks. Task 6 (Decontextualized Group Routine) and Task 7 (Decontextualized Story Starter) contained a majority of the REXs in Category 8 (Generic Pronoun with no Particular Reference), but Task 1 (Maximum Props) also contained 21% of all

the REXs in Category 8 (Generic Pronoun with no Particular Reference).

The REXs in Category 9 (Shared Unknown Referent) were found most often in the decontextualized tasks. For three-year-olds and four-year-olds, the percentage of the REXs in Category 9 (Shared Unknown Referent) in decontextualized tasks was close to or just over 50% of the total number of REXs for the category. For the five year-olds, Task 6 (Decontextualized Group Routine) and Task 7 (Decontextualized Story Telling) contained three-fourths of all the REXs in Category 9 (Shared Unknown Referent).

The category that was most difficult and also showed a developmental effect was 7 (Implied Reference to General Knowledge or Idiomatic Reference). This REX did not occur for any task at 3 years of age, occurred only 3 times (Picture Sequence and Group Routine) for 4 year-olds, and 21 times, with occurrence in every task except 4 (Verbal Script) for 5 year-olds. Other evidence of difficulty was revealed in Category 10 (Weakly Referenced or Omitted), and once again an age effect was shown. This REX occurred 28 times (17.1%) for 3 year-olds; 63 times (12%) for 4 and 90 times (11%) for 5 year-olds. Thus, while the number of weak references increased with age, the actual percentage of occurrence decreased. Children appear to use more specific references with age even though weak references continue to be used with relatively high frequency.

To determine if there were statistically significant age effects in the distribution of categories of response across the seven tasks, the Pearson Chi-square test was conducted to measure differences between groups. Chi-square was used because the categories developed to describe the different ways participants used referring expressions were established in a non-ordinate manner; thus, the method of categorizing the data inhibited other parametric statistical

Table 4

Number of Occurrences and Percentage of Categories of Total Referring Expressions by Age Group across the Seven Representational Tasks

		Three-year-olds											
		Category											
Task		1	2	3	4	5	6	7	8	9	1-0	Total	
		SelfR	CoTie	PN/A	Action	Pi/Ob	Recur	Impl	Gener	Unkn	Weak		
Contextualized	1	Number	4	0	1	2	8	3	0	2	0	6	26
	Max. Props	% Total	2.4%	0.0%	0.6%	1.2%	4.9%	1.8%	0.0%	1.2%	0.0%	3.7%	15.9%
	2	Number	0	1	3	0	17	1	0	1	0	2	25
Decontextualized	Pic. Sequence	% Total	0.0%	0.6%	1.8%	0.0%	10.4%	0.6%	0.0%	0.6%	0.0%	1.2%	15.2%
	3	Number	1	1	3	12	4	2	0	1	0	2	26
	Min. Props	% Total	0.6%	0.6%	1.8%	7.3%	2.4%	1.2%	0.0%	0.6%	0.0%	1.2%	15.9%
Decontextualized	4	Number	2	0	4	10	2	1	0	0	2	4	23
	Verbal Script	% Total	1.2%	0.0%	2.4%	6.1%	1.2%	0.6%	0.0%	0.0%	1.2%	2.4%	14.0%
	5	Number	0	6	9	0	0	1	0	0	2	2	20
Decontextualized	Story Retell	% Total	0.0%	3.7%	5.5%	0.0%	0.0%	0.6%	0.0%	0.0%	1.2%	1.2%	12.2%
	6	Number	0	1	7	0	0	1	0	2	2	6	19
	Grp. Routine	% Total	0.0%	0.6%	4.3%	0.0%	0.0%	0.6%	0.0%	1.2%	1.2%	3.7%	11.6%
Decontextualized	7	Number	1	6	7	0	0	1	0	3	1	6	25
	Story Starter	% Total	0.6%	3.7%	4.3%	0.0%	0.0%	0.6%	0.0%	1.8%	0.6%	3.7%	15.2%
	Totals	Number	8	15	34	19	31	10	0	9	5	28	164
		% Total	4.9%	9.1%	20.7%	14.6%	18.9%	6.1%	0.0%	5.5%	3.0%	17.1%	100%

Note. Category 1=Self Reference, Category 2=Cohesive Tie, Category 3= Contextualized Pronoun or Article, Category 4= Contextualized Pronoun or Article including Action Reference, Category 5= Clearly Referenced if Pictures or Objects are Visible, Category 6= Reference to Recurring Event, Category 7= Implied Reference to General Knowledge or Idiomatic References, Category 8= Generic Pronoun with no Particular Reference, Category 9= Shared Unknown Referent, and Category 10= Weakly referenced or Omitted Articles and Pronouns.

Table 4 (continued)

			Four-year-olds										
			Category										
Task			1	2	3	4	5	6	7	8	9	10	Total
			SelfR	CoTie	PN/A	Action	Pi/Ob	Recur	Impl	Gener	Unkn	Weak	
Contextualized	1	Number	18	1	5	24	19	10	0	6	0	19	102
	Max. Props	% Total	3.4%	0.2%	1.0%	4.6%	3.6%	1.9%	0.0%	1.1%	0.0%	3.6%	19.5%
	2	Number	0	1	17	1	64	8	1	0	0	5	97
	Pic. Sequence	% Total	0.0%	0.2%	3.3%	0.2%	12.2%	1.5%	0.2%	0.0%	0.0%	1.0%	18.5%
	3	Number	6	0	15	38	5	4	0	1	1	3	73
	Min. Props	% Total	1.1%	0.0%	2.9%	7.3%	1.0%	0.8%	0.0%	0.2%	0.2%	0.6%	14.0%
Decontextualized	4	Number	8	0	5	32	6	5	0	0	0	12	68
	Verbal Script	% Total	1.5%	0.0%	1.0%	6.1%	1.1%	1.0%	0.0%	0.0%	0.0%	2.3%	13.0%
	5	Number	0	12	34	0	0	1	0	0	5	2	54
	Story Retel	% Total	0.0%	2.3%	6.5%	0.0%	0.0%	0.0%	0.0%	0.0%	1.0%	0.4%	10.3%
	6	Number	0	4	26	1	0	1	2	2	1	16	53
	Grp. Routine	% Total	0.0%	0.8%	5.0%	0.2%	0.0%	0.2%	0.4%	0.4%	0.2%	3.1%	10.1%
7	Number	0	30	31	2	0	0	0	4	3	6	76	
Story Starter	% Total	0.0%	5.7%	5.9%	0.4%	0.0%	0.0%	0.0%	0.8%	0.6%	1.1%	14.5%	
Totals		Number	32	48	133	98	94	29	3	13	10	63	523
		% Total	6.1%	9.2%	25.4%	18.7%	18.0%	5.5%	0.6%	2.5%	1.9%	12.0%	100%

Note. Category 1=Self Reference, Category 2=Cohesive Tie, Category 3= Contextualized Pronoun or Article, Category 4= Contextualized Pronoun or Article including Action Reference, Category 5= Clearly Referenced if Pictures or Objects are Visible, Category 6= Reference to Recurring Event, Category 7= Implied Reference to General Knowledge or Idiomatic References, Category 8= Generic Pronoun with no Particular Reference, Category 9= Shared Unknown Referent, and Category 10= Weakly referenced or Omitted Articles and Pronouns.

Table 4 (continued)

			Five Year-olds										
			Category										
Task			1	2	3	4	5	6	7	8	9	10	Total
			SelfR	CoTie	PN/A	Action	Pi/Ob	Recur	Impl	Gener	Unkn	Weak	
Contextualized	1	Number	19	2	12	26	39	19	5	7	0	21	150
	Max. Props	% Total	2.3%	0.2%	1.5%	3.2%	4.8%	2.3%	0.0%	0.9%	0.0%	2.6%	18.7%
	2	Number	0	5	24	7	76	7	1	3	1	13	137
	Pic. Sequence	% Total	0.0%	0.6%	2.9%	0.9%	9.3%	0.9%	0.1%	0.4%	0.1%	1.6%	16.8%
	3	Number	8	5	9	40	33	9	1	4	0	10	119
	Min. Props	% Total	1.0%	0.6%	1.1%	4.9%	4.0%	4.0%	0.1%	0.5%	0.0%	1.2%	14.6%
Decontextualized	4	Number	7	5	5	41	3	11	0	5	1	15	93
	Verbal Script	% Total	0.9%	0.6%	0.6%	5.0%	0.4%	1.3%	0.0%	0.6%	0.1%	1.8%	11.4%
	5	Number	1	36	33	0	1	2	7	2	3	5	109
	Story Retel	% Total	0.1%	4.4%	5.5%	0.1%	0.1%	0.2%	0.9%	0.2%	0.4%	0.6%	11.0%
	6	Number	6	15	24	9	1	9	4	14	7	20	109
	Grp. Routine	% Total	0.7%	1.8%	4.3%	1.1%	0.1%	1.1%	0.5%	1.7%	0.9%	2.5%	13.4%
7	Number	0	35	43	1	0	6	3	15	9	6	118	
Story Starter	% Total	0.0%	4.3%	5.3%	0.1%	0.0%	0.7%	0.4%	1.8%	1.1%	0.7%	14.5%	
Totals		Number	41	103	150	124	153	63	21	50	21	90	816
		% Total	5.0%	12.6%	18.4%	15.2%	18.8%	7.7%	2.6%	6.1%	2.6%	11.0%	100%

Note. Category 1=Self Reference, Category 2=Cohesive Tie, Category 3= Contextualized Pronoun or Article, Category 4= Contextualized Pronoun or Article including Action Reference, Category 5= Clearly Referenced if Pictures or Objects are Visible, Category 6= Reference to Recurring Event, Category 7= Implied Reference to General Knowledge or Idiomatic References, Category 8= Generic Pronoun with no Particular Reference, Category 9= Shared Unknown Referent, and Category 10= Weakly referenced or Omitted Articles and Pronouns.

methods from being used. Moreover, the reduced or nonexistent data in some categories makes the statistical results not as conclusive in some cases; however, the results that were obtained with the non-parametric statistics do indicate that there are some significant relationships between the task, the number of referring expressions within the categories, and whether or not the task was contextualized or decontextualized.

A chi-square test of independence was performed to examine the relation between the contextualized versus decontextualized tasks and how participants from the three different age groups performed on the tasks. The relation between these contexts and the participant ages was significant for the decontextualized tasks $\chi^2 (18, N = 1503) = 40.3, p < .002$ but not for the contextualized tasks, $\chi^2 (18, N = 1503) = 15.7, p > .05$. Thus, each of the age groups performed similar in the contextualized tasks, but group differences were found for the decontextualized tasks.

Next, the relationship between the task and category was examined to see how the task affected the number of referring expressions found in the categories within each age group. Again, a chi-square test of independence was performed to examine these variables. The three-year-old, $\chi^2 (48, N = 1503) = 162.0, p < .001$, four-year-old, $\chi^2 (54, N = 1503) = 609.2, p < .001$, and the five year-old group, $\chi^2 (54, N = 1503) = 605.2, p < .001$ showed a significant relationship between the task and the category.

The relationship between the three different age groups and the tasks was also examined. Task 3 (Contextualized Minimum Props), $\chi^2 (18, N = 1503) = 29.7, p < .044$, Task 6 (Decontextualized Group Routine), $\chi^2 (18, N = 1503) = 29.3, p < .038$, and Task 7 (Decontextualized Story Starter), $\chi^2 (16, N = 1503) = 31.3, p < .012$, each showed a significant group difference in how each performed on the tasks. The other four tasks did not show an age

group difference in participant performance. Table 5 details these results for the chi-square tests examining the performance on the seven tasks between age groups.

Table 5

Performance of Different Age Groups on the Seven Tasks

Task	Value	df	Asymp. Sig. (2-sided)
Task 1	14.38	16	.571
Task 2	13.73	16	.619
Task 3	29.72	18	.045*
Task 4	19.11	16	.263
Task 5	21.59	16	.157
Task 6	29.93	18	.038*
Task 7	31.32	16	.012*

Note. * = significant at $p < .05$

DISCUSSION

Through this study, we have gained insights into referring expressions, including what they are and how they are used in discourse from language samples. In examining the language samples, we have started to explore how children use referring expressions, including the use of cohesive ties and types of errors children produce. Although looking at the language samples from this syntactic perspective is useful, this study also considers the effects of context and meaning and how these semantic-pragmatic variables affect the use of referring expressions. In addition, this study provides some early insights into effects of changing context and how this interacts with age. This study examined how three, four, and five year-old children used referring expressions in contextualized and decontextualized tasks along the developmental continuum described by the SDS model. It was anticipated that the types of referring expressions used would differ depending on the level of displacement and abstraction inherent in the task, and that age effects would be found.

Contextualized versus Decontextualized

Many events are highly contextualized in that the objects and actions involved are present in the context and can be referred to unambiguously with points, actions, or words such as demonstratives (i.e., “that,” “these”) or pronouns. Other events are decontextualized, recounted or symbolically created using words without support from the context. It was expected that differences would be found between the contextualized and decontextualized tasks of this study. As expected, reliable differences between contextualized and decontextualized tasks were found. The differences were particularly notable for the decontextualized events. Thus, while the three, four, and five year-olds used referring expressions similarly for the contextualized tasks, differences were found for the distribution of categories of referring expressions used by age

groups in the decontextualized tasks.

To determine how referring expressions were used differentially, their use was examined across ages for the contextualized versus decontextualized tasks. One expectation was that more referring expressions would be found in the decontextualized tasks rather than the contextualized tasks since the decontextualized tasks should require more words in the absence of props, and subsequently more referring expressions. However, more referring expressions occurred in the contextualized tasks. In fact, half of all the referring expressions came from Categories 3 (Contextualized Pronoun or Article), 4 (Contextualized Action Reference), and 5 (Contextualized Reference to Pictures or Objects) in the contextualized tasks. Of these three categories, three-year-olds had a high number of referring expressions in referencing objects and pictures, and the four and five year-olds had more referring expressions in the action reference.

One possible explanation for a higher percentage of referring expressions in the contextualized tasks as a whole is the familiarity and ease in which the participants were able to talk about the objects, pictures, and actions in the contextualized tasks. When the speaker chooses a particular referring form within a context, the speaker is assuming that the addressee shares certain knowledge and assumptions. In contextualized tasks, the shared knowledge and assumptions are transparent because they are physically observable. A wide range of verbal and nonverbal strategies may be used to make reference to these entities and the more basic strategies (personal reference, action reference, and picture/object reference) work well. In more decontextualized tasks, these strategies would result in ambiguous or unknown references and more sophisticated strategies are required. Further, the shared objects and actions of the contextualized tasks provide a scaffold for the talk. Children are reminded by the props to continue to add information and do not need to rely on memory. Maratsos (1976) would say

these tasks place fewer processing demands on the speaker and talk may occur very efficiently. In contrast, the decontextualized tasks place greater processing demands on the speaker. To clearly refer to agents and actions without contextual support, the speaker must calculate what the hearer knows about a particular referent, and be able to use language to specify intended meaning. The increased processing demands might be enough to limit the amount of information that can be considered and in turn the number of referring expressions.

Statistical analyses did support reliable differences between contextualized and decontextualized tasks. The differences were particularly notable for the decontextualized events. Thus, while the three, four, and five year-olds used referring expressions similarly for the contextualized tasks, differences were found for the distribution of categories of referring expressions used by age groups in the decontextualized tasks.

These results indicate that when there is an environment that contains rich contextual material, which included props and pictures for this study, children of all ages are more likely to refer to objects in the same manner. Self-references (e.g., “I get a brush”) occurred primarily in the contextualized tasks, particularly Task 1 where children were to use multiple props to describe the bed time routine. This use would be expected since the children were the actual agents in this pretend sequence. They also occurred to a lesser extent in the parallel Task 3 where minimal props were provided, but self reference was not used by any children for Task 2, a picture sequence showing another child getting ready for bed. Self reference almost never occurred for the decontextualized tasks. Only when children were talking about a bed time routine to a puppet (Task 4) did they talk about their personal experience. These results indicate that even 3 year-olds used self-reference only in appropriate contexts and were able to talk about a bed time routine from a perspective other than their own whether the task was contextualized

or decontextualized.

A nearly identical pattern was found for action references established with pronouns or articles (e.g., “First you do **this**” [demonstrating]). These did not occur in decontextualized contexts except Task 4, but occurred with relative frequency for enactments with both maximum and minimum props. Once again, even 3 year-olds understood when they could refer to actions using nonspecific referents and when they needed to specify actions in words. Finally, reference to pictures or objects occurred almost exclusively in contextualized tasks (e.g., “**He**’s about to wash **his** hair” where “he” is understood to refer to the doll without prior identification). Children age 3-5 did not use this type of reference in decontextualized tasks where the referent would have been unknown or unclear.

Several categories of referring expressions were likewise specific to decontextualized tasks. Cohesive ties establish clear reference to a previously verbally established reference (e.g., “The boy is in bed. **He**’s tired”). These rarely occurred in contextualized tasks, but were prevalent in decontextualized narratives (Tasks 5 and 7). The narrative tasks required the child to refer to the same character across multiple actions and events to a greater extent than explaining a routine. In the contextualized narrative (Task 2) the child made reference to pictured elements using pronouns without first verbally naming the referent. These patterns of referential expressions show that even the 3 year-olds were aware of the difference in task demands. Decontextualized tasks also elicited more implied references (e.g., “You get **the** soap” although the actual soap isn’t known to the listener). Finally, the use of a shared unknown referent (e.g., “**Something** was drippin’ down” is assumed from the context to be rain) occurred almost exclusively in decontextualized tasks, and surprisingly, with greatest frequency in the 3-year-old group. These results show that 3 year-olds have a good command of language and how

to use it to share reference, even when no objects are present to support the talk and the topics are decentered from the child's perspective.

Task Effects

When the tasks were examined, significant effects also were obtained. The communicative requirements of the seven tasks affected the frequency and distribution of the referring expressions. For all ages, Task 1 (explaining the bedtime routine with maximum props) elicited the greatest number of referring expressions, followed by Tasks 2 (picture sequencing), 3 (bedtime routine with minimum props) and 7 (narrative from a story starter). Tasks 1, 2 and 3 were all contextualized and had a high number of action and picture/object references. In contrast, Task 7 elicited cohesive ties and pronoun or article referencing expressions. These differences are predictable and suggest that the use of referring expressions was driven in a sense by the task itself. For example, in Task 2 (Picture Sequencing) participants referred to pictures and thus there is less need to specifically refer to referents by name. In contrast, Task 7 (Story Generation) required the child to create and keep track of specific entities that do not exist except for their creation in words. Specific pronouns and cohesive ties are the tools of the language for reinstating a referent as an event unfolds. These referring expressions symbolically perform much the same action as pointing or manipulating objects in a contextualized task

Tasks 5 (Story Retell) and 6 (Group Routine) elicited the fewest number of referring expressions. In Task 5 (Decontextualized Story Retell) more pronouns and articles and cohesive ties were used across all of the different ages. One reason participants used these forms almost exclusively may have been the structure of the task. The participants listened to a story about the bedtime routine not based on their own experiences. When the story was read to the participant, neither of the main characters (a girl and a cat) were named, but instead referred to

using pronouns heavily throughout the story. Unless the child invented names for the retelling, a high level of pronouns, articles, and cohesive ties would necessarily occur.

Task 7 (Story Starter) was designed to be the most difficult task in that children had to generate a story with no support from context or suggestions for plot. It was expected that children would demonstrate difficulty generating a novel event from words alone, especially since they previously displayed difficulty with Task 6 (Group Routine). However, children generated more referring expressions for this task than for any other decontextualized task, comparable to the contextualized tasks. In fact, the children told highly imaginative stories with complex plots (e.g., burglars breaking into their home). Several possibilities may explain this finding. The children may have benefitted from narrative structure and were able to generate ideas better to fit this discourse type than the group routine because they first introduced a setting, then a problem, and solution. However, the children had greater difficulty with Task 5 (Story Retelling) and so this alone did not account for the increase. For at least some children, the idea of a storm, introduced in Task 6, carried over into their story, and thus that task provided information to talk about with a possible problem and solution. Task 5 (Story Retelling) and 6 (Group Routine) were relatively constrained tasks. The child had to recall a story in the way that it was structured by the original author, or generate a possible and plausibly real group bedtime routine. In Task 7, the constraints were removed, and the child was free to talk about any action sequence.

Examination of the task demands and referring expressions actually used revealed that 3 to 5-year-old children are highly aware of both listener needs and task demands and orient their use of referring expressions accordingly. Clear differences were found in the use of referring expressions that were consistent with the props available, familiarity of the task event, and

memory for recounting compared to generation of novel information. The three-year-olds were able to perform all of the tasks in profiles similar to the 4 and 5-year-olds, although several age differences were observed.

Age Effects

While 3 year-olds performed similarly to the older groups and with surprising abilities to decenter, significant age effects were found. Statistically reliable differences related to age were specific to tasks Task 3 (Minimal Props), Task 6 (Group Routine), and Task 7 (Story Starter). Each of these tasks required the child to generate the majority of the information independently, as opposed to recounting known information or using props to generate ideas. In Task 3, children had to create the entire bed time sequence with just 2 props (a bar of soap to suggest the bath subroutine and a blanket to suggest the bed subroutine), in contrast to a full array of props for Task 1. This placed the burden on the child's memory and symbolic representations to accurately explain the event sequences. In Task 6, the child was given no props and had to create a bedtime procedure for children who had to stay at school because of a storm. In this task, the child had to make analogies from the personal bedtime routine to encompass a number of people in an unfamiliar setting. Similarly, in Task 7 the child had to use prior knowledge of routines gone awry to generate a novel story when given the starter, "*One night when it was time for Carl (Carla) to go to bed...*". Under these linguistically challenging circumstances, age differences were apparent.

The 3-year-olds produced their highest levels of weak or omitted reference for these three tasks, as in "Storm went away" (omitted article) or "Jumped up" (unknown referent) (although these also occurred in Task 1 with high frequency). In contrast, the number of weak references decreased with age, with the 4 and 5 year-olds showing high levels of weak reference only for

routine generation (Task 6). In general, the oration elicited by these three tasks was shorter and more disorganized than the other tasks. This was reflected in the use of cohesive ties, which was minimal for 3 and 4-year-olds (.6% and .8%) and only slightly higher for 5-year-olds (1.8%). Children at all ages had particular difficulty generating a routine. Some could displace to the new context by using a naptime analogy (“Okay everybody lay on your mats and get your blankies um in your cubbie and cover up good”), while others used elements from home (Uh brush your teeth. And she might cover you up. Uh just go to bed.”). But surprisingly, even the 3-year-olds could invent some form of bedtime procedure for the imaginary task.

The 5-year-olds produced more unknown but shared references as well as implied references across the tasks, showing a greater ability to take into account shared knowledge and listener needs with age. They made more references to action, recurring events, and pictures and objects than younger subjects, although all ages used these strategies. This occurred in part because the 5-year-olds told slightly longer orations with more details.

In the case of the three-year-olds using more referring expressions when talking about objects and pictures than four and five year-olds, they may do so because of processing limitations. It may have been easier for the three-year-olds to access the mental representations from their own minds to talk about the pictures and objects used in a familiar routine. They focus on the objects because it is easier to do so than to refer to the action which would require further processing to determine how the objects are used, and it seems in this study that they not willing or not able in some cases to use the extra processing required to use the action reference as the four and five year-olds did; hence, the four and five year-olds referred more to the reference action than the three-year-olds.

In Task 5 (Decontextualized Story Retell), more pronouns and articles were used in this

task across all of the different ages. One of the reasons why participants may have used more pronouns and articles may have been because of the way in which the task was created. The task required participants to listen to a story about the bedtime routine not based on their own experiences. When the story was read to the participant, two important, specific scenes were pointed out to the participant. When the book was placed out of the participant's sight, the participant was asked to retell the story. This task combined a bedtime routine of a girl in the story that, in many cases, was similar to the participant's own bedtime routine. By pointing out the two scenes where the bedtime routine had deviated from the normal one a child was used to, the difference had become a salient point to the participant. Thus, the child was able to combine a familiar routine with the deviations made obvious to them thereby making it easier to recall the story.

The referring expressions in other categories indicate that a developmental difference may exist between the three, four and five year-olds. In Category 7 (Implied Reference to General Knowledge), three-year-olds did not do this at all, four-year-olds only used these types of referring expressions 3 times, but five year-olds used them 21 times with the occurrence happening in each task except Task 4 (Decontextualized Verbal Script). The five year-olds have idiomatic language and can make implied references much more so than the three and four-year-olds. The primary reason for this might be because of the cognitive abilities that the five year-olds have that the three-year-olds do not have and that the four-year-olds are developing. The five year-olds are able to use their experience and apply this general knowledge about an event or action to other situations and make implied references.

Another developmental difference is that three and four-year-olds have weaker references than five year-olds. The three and four-year-olds more frequent use of a weaker form where a

stronger form would be more appropriate might also indicate an increased level of cognition by the five year-olds. In the earlier example, "Sandra Day O'Conner is a member of the Supreme Court. She was the first woman appointed to it," the referring expressions indicate an appropriate use of the referring expressions. The speaker would determine that by using "the" in front of the Supreme Court, the hearer knows which Supreme Court is being referenced and that use of the word "it" in the second sentence indicates means the speaker believes the hearer knows that "it" refers back to "the Supreme Court." By using the weaker form, the possibilities for the reference would be different. "Sandra Day O'Conner is a member of *a* Supreme Court" alters the reference. Now, one had to think that "a Supreme Court" could be one of many Supreme Courts. The weaker form is often used by children who have not fully developed the ability to put themselves in place of the hearer and to determine what it is that the hearer knows to be able to make mutual assumptions so that he or she can choose the most appropriate form. The use of the weaker form might be because of the TOM that is required where the speaker makes assumptions about the hearer's knowledge and places himself in the speaker's perspective. When the weaker form is used, it could also indicate that the referring expressions are not fully being used to express a referential attribute; rather, the weaker form is present to meet an expected syntactic requirement. Using a weak form may be done so because the speaker has enough linguistic experience to know that a function word belongs with the noun, but the speaker has not yet acquired the ability to discern which one of the function words would meet the syntactic requirement while also adding more specific content to the referring expression with the use of a more appropriate function word. This may also explain the types of errors found in Category 8 (General Pronoun with no Reference).

The three and five year-olds use of referring expressions from Category 8 (General

Pronoun with no Reference) comprised about 5% to 6% of the total number of referring expressions. Four-year-olds, however, made fewer of these with only 2.5% of the total number of referring expressions placed into this category. Although no particular reason why three and five year-olds made more of these errors than four-year-olds was not found, it could be that in the acquisition of the ability to use the referring expressions, the three-year-olds are prone to make more errors as they begin to use the referring expressions in a more referential manner and not based on syntax being the single or primary factor in using the referring expressions. The five year-olds could be incorrectly assuming what the speaker and the hearer both know or have access to in trying to resolve the reference. As the TOM develops, a child may believe that the hearer has everything in the context available to him or her and has the same information and knowledge, so the child incorrectly refers to something he or she believes the hearer has access to and makes a referring expression based on this assumption. Whereas the four-year-olds in the study might have not tried to figure out the mutual assumptions and used a longer form of the referring expression to ensure the hearer would understand the context thereby avoiding the problem of using referring expressions in a manner where the hearer does not know what is being referenced.

Limitations of the Study

The study's biggest limitation was the small sample size, and this was particularly true of the three-year-old group. Having four participants was not enough to draw conclusions with complete confidence that such a small sample size accurately represents how a larger number of three-year-old participants would perform in the study. The participants in the study also primarily came from low socioeconomic status; thus, a more random sampling of the population might also yield a difference in how participants from higher income families would perform

compared to the lower. The study is also limited by the majority of participants being either Caucasian or African-American. Including other races that better reflect the population at large might yield different results.

Future Research

Future research should examine how children with SLI (Specific Language Impairment) use referring expressions across the tasks in this study. Using the findings of this current study and comparing them to participants with SLI would allow clinicians to make certain determinations as to where a child might be on the SDS developmental levels.

Other research that could be done would be to go up to Level X, the Logical level on the SDS model. This might allow for more developmental differences to be revealed. Also, the tasks, even in the decontextualized ones, were based on a familiar event. A topic that is not as familiar to the participants in the decontextualized task may also reveal more developmental differences, but the number of referring expressions used might also suffer if this approach is adopted. Future research could also be done that develops the tasks in a way where referring expressions are elicited from tasks where a preferred referring expression is compared to others that are not preferred. Such a research design would allow for parametric statistics to be used, and the results might be more conclusive.

Seeing how English as a Second Language (ESL) speakers use referring expressions would also be interesting. The comparison of older ESL speakers to participants in this study could show how the acquisition process is either similar or different for ESL learners.

REFERENCES

- Abney, Stephen P. (1987). *The English Noun Phrase in its sentential aspect*. Unpublished Doctoral Dissertation. Massachusetts Institute of Technology, Cambridge, MA.
- Abu-Akel, A., Bailey, A. L. & Thum, Y-M. (2004). Describing the acquisition of determiners in English : A growth modeling approach. *Journal of Psycholinguistic Research* 33, 407–424.
- Astington, Julie. (2001). The future of Theory of Mind research: Understanding motivational states, the role of language, and real world consequences. *Child Development*. 72: 685-687.
- Bergen, D. (2002). The role of pretend play in children’s cognitive development. *Early Childhood Research & Practice*. 4: 71-73.
- Boyle, M.K. & Gerken, L.A. (1997). The influence of lexical familiarity on children’s function morpheme omissions: A nonmetrical effect? *Journal of Memory and Language* 36, 117-128.
- Bloom, L. (1973). One word at a time: the use of single-word utterances before syntax. The Hague: Mouton.
- Bloom, L. & Tinker, E. (2001). The intentionality model and language acquisition: Engagement, effort, and the essential tension. *Monographs of the Society for Research in Child Development*, 66 (Serial No. 267).
- Brown, L., Sherbenou, R.J., & Johnsen, S.K. (1990) *Test of nonverbal intelligence: A language-free measure of cognitive ability* 2nd Ed. Austin, TX: Pro-Ed.
- Butterworth, G. (1991). The ontogeny and phylogeny of joint visual attention. In A. Whiten (Ed.), *Natural theories of mind: Evolution, development and simulation of everyday mindreading*. pp. 223–232. Oxford, England: Basil Blackwell.
- Butterworth, G. (1995). Origins of mind in perception and action. In C. Moore & P. J. Dunham (Eds.), *Joint attention: Its origins and role in development*. 29-40. Hillsdale, NJ: Erlbaum.
- Delgado C, Mundy P, Crowson M, Markus J, Yale M, Schwartz H. (2002). Responding to joint attention and language development: A comparison of target locations. *Journal of Speech, Language and Hearing Research*. 45:1715–1719
- Garvey, Catherine. (1990). *Play*. Cambridge, MA: Harvard University Press.
- Gerken, L. A. and McIntosh (1993). The interplay of function morphemes and prodody in early language. *Developmental Psychology* 29: 448-457.

- Gordon, R. & Barker, J. (1994). Autism and the 'theory of mind' debate. In G. Graham & G. L. Stephens (eds.), *Philosophical psychopathology: A book of readings*, Cambridge, MA: MIT Press.
- Gundel, J. (2008). Children's use of referring expressions: What can it tell us about theory of mind? *Cognitive Critique*, 1, 93-94.
- Hornik, R., Risenhoover, N., & Gunnar, M.R. (1987). The effects of maternal positive, neutral, and negative affective communications on infant responses to new toys. *Child Development*, 58, 937-944.
- Jackendoff, R. (2002). *Foundations of Language: Brain, Meaning, Grammar, Evolution*. Oxford: Oxford University Press.
- Klinnert, M.D., Campos, J.J., Sorce, J.F., Emde, R.N., & Svejda, M. (1983). Emotions as behavior regulators: social referencing in infancy. In R. Plutchik & H. Kelleman (Eds.), *Emotion: Theory, research and experience: Vol. 2. Emotions in early development* (pp. 57-86). New York: Academic Press. 195-200.
- Leslie, A. M. (1987). Pretence and representation: The origins of 'theory of mind'. *Psychological Review*, 94, 412-426.
- Lillard, Angeline. (1993). Theories behind Theories of Mind. *Human Development*, 41, 40-42.
- Maratsos, M. P. (1976). *The use of definite and indefinite reference in young children*. Cambridge: Cambridge University Press.
- Maratsos, M., Gudeman, R., Gerard-Ngo, P. and G. Dehart. (1987). A study in novel word learning: The productivity of the causative. *Mechanisms of Language Acquisition*, ed. B. MacWhinney, 89-113, Hillsdale: NJ, Lawrence Erlbaum Associates Publishers.
- Morales, M., Mundy, P., Delgado, C. E. F., Yale, M., Messinger, D., Neal, R., & Schwartz, H. K. (2000). Responding to joint attention across the 6- through 24-month age period and early language acquisition. *Journal of Applied Developmental Psychology*, 21, 283-298.
- Mundy, P. & Crowson, M. (1997). Joint attention and early social communication: Implications for research on interventions with autism. *Journal of Autism and Developmental Disorders*, 6, 653-676.
- Janice Gruendel, J. & Nelson, K. (1986). Event Knowledge: Structure and Function in Development. Hillsdale, NJ: Lawrence Erlbaum Associates
- Norris, J.A. (1998). Psycholinguistic foundation of communication development. In B.

- Shulman & W. Haynes (Eds.). *Communication development: Foundations, processes and clinical applications* (pp. 5-28). New York: Williams and Wilkins.
- Norris, J.A. & Hoffman, P.R. (1993). Whole language intervention for school-age children. San Diego, CA: Singular Publishing Group.
- Norris, J.A., & Hoffman, P.R. (2002). Language development and late talkers: A connectionist perspective. In R.G. Daniloff (Ed), *Connectionist Approaches to Clinical Language Problems in Speech and Language*, pp. 1-109. Fairfax, VA: TechBooks.
- Piaget, J. (1955). *The child's construction of reality* London: Routledge and Kegan Paul.
- Piaget, J. (1962). *Play, dreams, and imitation in childhood*. New York: W. W. Norton.
- Pine, J. M. & Lieven, E. V. M. (1997). Slot and frame patterns and the development of the determiner category. *Applied Psycholinguistics* 18, 123–38.
- Pine, J. M. & Martindale, H. (1996). Syntactic categories in the speech of young children: the case of the determiner. *Journal of Child Language*, 23, 369-395.
- Pizutto, E. and Caselli, C. (1994) The acquisition of Italian verb morphology in a cross-linguistic perspective. In Levy, Y. (ed.) *Other Children, Other Languages*. 137–188, Erlbaum.
- Radford A (1990). *Syntactic Theory and the Acquisition of English Syntax*, Blackwell, Oxford
- Repacholi, B. & Gopnik, A. (1997). Early understanding of desires: Evidence from 14 and 18-month-olds. *Developmental Psychology*, 33 (1), 12-21
- Searle, J. (1969). *Speech Acts: An Essay in the Philosophy of Language*. New York, Cambridge University Press.
- Smith, Emily. (1999). *The performance of prekindergarten children on representational tasks across levels of displacement*. Unpublished Doctoral Dissertation. Louisiana State University, Baton Rouge, LA.
- Source, J. F., Emde, R., Campos, J., et al. (1985). Maternal emotional signaling: Its effect on the visual cliff behavior of 1-year-olds. *Developmental Psychology*, 21, 195-200.
- Tomasello, M. (2000). Do young children have adult syntactic competence? *Cognition*, 74, 209-253.
- Tomasello, M. (2003). *Constructing a language : A usage-based theory of language acquisition*. Cambridge, MA: Harvard University Press.
- Tomasello, M., Akhtar, N., Dodson, K. Rekau, L. (1997). Differential productivity in young

- children's use of nouns and verbs. *Journal of Child Language*, 24, 373-387.
- Walden, T.A., & Ogan, T.A. (1988). The development of social referencing. *Child Development*, 59, 1230–1240.
- Wittek, A. & Tomasello, M. (2005). Young children's sensitivity to listener knowledge and perceptual context in choosing referring expressions. *Applied Psycholinguistics*, 26 (4), 541-558.
- Wimmer, H. & Perner, J. (1983). Beliefs about beliefs: Representation and constraining function of wrong beliefs in young children's understanding of deception. *Cognition*, 13, 103-128.
- Yuill, N., Perner, J., Pearson, A, Peerbhoy, D. & van den Ende, J. (1996). Children's changing understanding of wicked desires: From objective to subjective and moral. *British Journal of Developmental Psychology*, 14, 457.

APPENDIX A

ABBREVIATIONS

ESL	English as a Second Language
REX	Referring Expression
SES	Socioeconomic Status
SDS	Situational-Discourse-Semantic
SLI	Specific language Impairment
TOM	Theory of Mind
TONI-2	Test of Nonverbal Intelligence, Second Edition

APPENDIX B

PARENT CONSENT FORM

Proposed research project title: Child Acquisition of Referring Expressions

Invitation to Participate

The children in your child's classroom have been invited to participate in a research project. The research is designed to learn more about how young children refer to and mentally represent everyday routines and stories. Signing this consent form will allow your child to participate in the study. It will also allow me, Carlton Downey, to use the data in an ongoing research project that looks at how three to five year-old children refer to common objects and events.

Purpose of the Study

This study could be useful in explaining how children acquire certain language skills. The findings of this study could lead to a better understanding of the language acquisition process in general, and it could be used to assist in future teacher preparation.

Explanation of Procedures

If you sign the consent form and your child meets the above mentioned criteria for this study, his or her name will be placed in a pool. From this pool, some names will be selected and these children will be chosen as a representative of the class even though there may be other children having the same selection criteria. You will be notified by telephone if your child is selected. The session will be videotaped and transcribed for the purpose of later analysis.

The children selected will become familiar with my presence in the classroom before participating in one individual session lasting approximately 30 minutes. The session will be videotaped and transcribed for the purpose of later analysis. All video taped sessions will be videotaped in a room familiar to your child, and you and/or another staff member from the school will be in the room at all times.

Potential Risks and Benefits

There are no potential risks for the child in this study.

The potential benefit is that the language samples collected will contribute to a theory of language development that might guide adults (parents and caregivers) in their interactions with young children.

Assurance of Confidentiality

The information collected will be treated confidentially. At no time will the identity of your child be revealed to anyone including others at Louisiana State University involved in this research project. To assure this, an identification number will be assigned to each child who

participates in this study. The results will be included in a completed dissertation completed as a requirement for the doctoral degree. The results may also be shared with early childhood professionals through journal articles, workshops, or presentations at conferences. No names will be linked to any child's language samples or videotape in the dissertation or any other presentation of this study.

Withdraw From the Study

Your participation and the participation of your child is voluntary. If you decide to participate, you and your child are free to withdraw your consent and to discontinue at any time.

Offer to Answer Questions

If you have additional questions or concerns, please contact me at the number below. When the study is completed, you will be invited if you so choose to have the results explained. Thank you for your interest in this project.

_____(Occupation)_____

Mother's Name and Phone Number

_____(Occupation)_____

Father's Name and Phone Number (if different from Mother's)

YOU ARE VOLUNTARILY MAKING A DECISION WHETHER OR NOT TO ALLOW YOUR CHILD/LEGAL WARD TO PARTICIPATE. THE RESEARCHER WILL SIGN THE CONSENT FORM AND WILL KEEP THE CONSENT FORM ON FILE.

Signature of Parent of Legal Guardian

Date

Child's Name

Signature of Researcher

**Carlton Downey
23206 Goldensong Ct.
Spring, TX 77373
(281) 288-8216**

APPENDIX C

TASK PROCEDURES

Task 1. High Support Enactment, SDS Level III: Contextualized Relational.

Ok, (Child's Name) let's pretend you are getting ready for bed at your house.

I want you to show me everything you have to do when you get ready for bed at home. You can pretend this rug [*point to rug*] is the bed, and if you need a bathtub you can pretend this [*point to large plastic tub*] is the bathtub.

I also have some other things that you might need to pretend all the things you do at home.

When you have to take off your school clothes or play clothes to get ready for bed, you can just pretend you are taking off your clothes.

Task 2. Picture Sequencing, SDS IV: Contextualized Symbolic.

These are pictures of a little girl getting ready for bed, and they have gotten all mixed up. [*Place ONLY the first 4 pictures of the sequence RANDOMLY in front of the child.*]

I need you to put them back in order to show how the girl gets ready for bed. Ok, now help me find the first thing you need to do when it's time to take off your play clothes or your school clothes and get ready to go to bed.

Look carefully at all the pictures. Which picture shows the first thing you need to do when it's time to get ready for bed? [*Line up the photos in the sequence pointed to or picked up by the child.*] And what does she/he do next?" [*Ask after each of the first 3 photos selected by the child is placed in the sequence.*]

[*After placing the fourth photo*] Now here are more pictures showing more things the girl/boy does before going to bed. [*Place photos randomly in front of child.*]

Look carefully at these pictures to find the one that shows what the girl needs to do next to get ready for bed. What comes next after she does this? [*Point to the last picture placed in the initial sequence. Continue placing photos according to the sequence pointed to or picked up by the child.*] And what does she/he do next? [*Ask after each of the first 3 photos of the second sequence are selected by the child.*]

Now look at the pictures lined up here. [*Sweep hand from left to right across photos.*]

Check to see if they are lined up to show the right way to get ready for bed. Tell me if you need to move any pictures to show the right way to get ready for bed. [*Allow child to remove photo from sequence only when he/she can*

indicate where it belongs. Assist child to make space/s where indicated for repositioned photo/s and close any open space/s.]

[After child has indicated that the photos are in the correct order, point to the first photo.] What is the girl doing here? [Continue by pointing to each successive photo, repeating question as needed.]

Thank you so much for helping with the pictures. *[Say as photos are picked up.]* This one, then this next, then this one, etc. *[Remove photos from child's sight.]*

Task 3. Low Support Enactment, SDS V: Minimal Props, SDS V: Contextualized Logical.

I want you to meet a friend of mine. This is Polly Puppy, and this is her little girl doll. The little girl doll doesn't know what boys and girls have to do to get ready to go to bed. You know what boys and girls do to get ready for bed, and Polly would like it if you could help her doll learn.

The little girl doll needs very few things to get ready for bed. I only have a little bar of soap and a little blanket. I don't have all the other things a little girl needs to get ready for bed so you will just have to pretend you have the other things she needs.

Now show Polly and tell her how to get the little girl ready for bed just like you get ready for bed at your house.

[Puppet says] Please help me learn how to get my little girl ready for bed. Show me and tell me how to make her do everything you do at your house to get ready for bed.

[After child finishes routine with the doll, have puppet get the doll ready for bed or, if child asks for a turn with the puppet, allow child to make the puppet get the doll ready for bed.]

Task 4. Verbal Script, SDS VI: Decontextualized Egocentered.

I want you to meet another friend of mine, Freddie Frog.

[Freddie says] Rivet, rivet. I'm Freddie Frog and I don't want to be a frog anymore.

Freddie wants to be a real child and live in a house and go to bed like a real child.

[Freddie says] I don't want to sleep outside anymore, I want to go to bed like a real child.

Freddie will know what to do if you just tell him. Tell him all the things you have to do at your house to get ready for bed at home so he can get ready for bed by himself.

After you tell Freddie everything he needs to do, he will try to get ready all by himself.

[Enact routine with puppet or, if child asks for a turn with puppet, allow child to make puppet get ready for bed.]

Task 5. Story Retelling, SDS Level VII: Decontextualized Decentered.

This is a book about a little girl who was getting ready for bed one night. Let's read the story to find out what happened one night when it was time for her to get ready for bed.

The story is called BEDTIME CAT. Show me the cat.

[After child indicates cat on the front cover.]

Now let's read the story to find out what happened.

[READ story. Pause after reading text under drawing depicting cat running out the bathroom doorway and point to the cat.] What's happening here?

[After child indicates the cat is running out, point to girl's eyes.] Does the girl see?

[Continue reading after child indicates that the girl does not see the cat leave.

Provide additional prompts if necessary.]

[After reading line of text, "My cat is lost", point to the drawing of the girl being led by an adult hand.] Who's holding the girl's hand? *[Child should indicate hand belongs to the girl's mother.]*

[At end of story, remove book from child's sight.]

I hear something. *[Make muffled puppy sounds as puppy puppet is retrieved from bag.]* It's Polly Puppy. She was sleeping in my bag.

[Polly says] Carlton, will you read the BEDTIME CAT story to me?

[Tell child] Oh no, Polly was fast asleep in the bag while I was reading the story, and she didn't get to hear the story.

[Tell puppet] Now Polly, I just read that story to (Child's name). I'm too tired to read it all over again. But (Child's name) is a nice girl. I think she will tell you what that story is about.

[tell child] Please tell Polly Puppy all the things you remember from the BEDTIME CAT story.

[Polly says] (Child's name), please tell me what happened in the BEDTIME CAT story.

[Puppet gives up to 4 prompts to child.]

Task 6. Group Routine, SDS Level VIII: Decontextualized Relational.

The way children do things at home is different from the way they do things at school.

At home when it's lunch time you go to the kitchen and somebody fixes the food and you sit down at the table to eat.

At school you have to do things with your class, and everyone has to take turns and follow the same rules.

When it's time for lunch at school, Ms. (Teacher's name) says to line up and you have to walk quietly to the cafeteria and you take turns washing your hands and getting your tray.

You have to push your tray down the line and the ladies put the food on your tray, then you sit at a table with your class and eat your lunch.

Then you have to wait for the teacher to tell you when to put your tray up and then you line up again and walk quietly back to the classroom.

Well, let's pretend that one day after lunch and after naptime, when it was almost time for the children to go home, something strange happened. A very bad storm came to Houston. The wind was blowing things down outside and there was a lot of lightening and rain and very loud thunder.

Ms. (Principal's name) and Ms. (Teacher's name) said, "The children can't go home today."

The bus drivers couldn't drive the buses on the roads and the parent's could not pick up their children because it was too dangerous to drive on the roads in the very bad weather.

And the mamas and the daddies couldn't drive to the school to get the children because it was too dangerous. So the mamas and the daddies had to stay where they were until the bad storm was over. And the children had to stay at school and the teacher had to take care of them until the bad storm was over.

Ms. (Teacher's name) had to get all the children ready for bed and the children had to sleep at school that night.

Ms. (Teacher's name) had to make some rules so that the children could take turns to do the same things to get ready for bed at school.

Let's pretend Ms. (Teacher's name) had some blankets and some toothbrushes to pass out to the children.

Tell the story about how Ms. (Teacher's name) would make rules so that all the children could get ready for bed at school instead of at their houses on the night when the big storm came to Houston.

[Provide up to 4 prompts.]

Task 7. Story Generation, SDS Level IX: Decontextualized Symbolic.

I love to hear stories. Do you like to hear stories?

When I was a little like you, I used to make up stories about a little girl/boy who was getting ready for bed one night. Sometimes I made up funny stories or scary stories, or sad stories.

Let's tell a story about what happened one night when a little boy/girl named CARLA/CARL was getting ready for bed.

Think about something that happened one night at C's house. *[pause]*

Now, I will start the story and you can tell the rest.

One night when it was time for C to go to bed

[Provide up to 4 prompts.]

APPENDIX D

DATA ANALYSIS FORM

	Self-Referenced, clearly established	Clear cohesive tie to a previously verbally established reference	Clearly referenced contextualized pronoun or article	Clearly referenced contextualized pronoun or article including action reference	Clearly referenced if picture or toys are visible to both (but not specifically referenced first)	Reference to a recurring event rather than the object	Weakly referenced contextualized article (more generic reference to object)	Implied reference to general knowledge	Idiomatic reference	Tense driven "the"	Wrong perspective	Shared unknown reference	Contextualized the decontextualized	Omitted article	Omitted Pronoun	Generic Pronoun
Task 1																
Task 2																
Task 3																
Task 4																
Task 5																
Task 6																
Task 7																

APPENDIX E

SAMPLE TRANSCRIPTS

Participant 33

Task 1

First you eat your supper

RESEACHER: Can you show me?

You get that [holds bowl and pretends to eat with spoon]

Then I brush my teeth

I get a brush [picks up toothbrush and pretends to brush teeth]

I take a bath

I have to get in that and I have to get the soap

I get in the bathtub and wash [gets in tub and washes with soap]

Okay and then what else?

What we ... Then you dry off [gets towel and rubs body]

RESEACHER: Oh

I get all dry and everything

RESEACHER: And you get yourself dry all by yourself. Well what's next?

I dress up

RESEACHER: Okay

Dress up in it. So dress up in it like this [puts on T-shirt]

RESEACHER: Okay

And, and what else do I do?

RESEACHER: What do you do after you put on nightclothes?

Go to bed

RESEACHER: Show me how you go to bed.

You get a pillow and put it right there and get your cover and lay down

RESEACHER: Okay

And then what else do I do?

RESEACHER: What's the next thing you do when it's time to go to bed?

Read a book [looks at book but does not get book]

RESEACHER: Then?

A Kiss then hugs

RESEACHER: Who?

My mommy gives me a hug

RESEACHER: And then

I go to sleep

Task 2

Order: A,B,C,D,E,G,F,H

Taking his clothes off

He's about to wash his hair in the bathtub

He's getting soap in his hands to wash his face off

and wash everything

RESEACHER: Okay

He is drying off

His mama's helping him dry off

RESEACHER: Okay

He's putting his clothes on

He's about to hear a bedtime story

He asks his mom if he could read

Then he goes to brush his teeth

And then he went to bed

RESEACHER: And what happens?

And then he went to bed

RESEACHER: Yeah. Anything else?

[nods head no]

Task 3

Take a bath [rubs soap on doll]

RESEACHER: What next?

Put the soap on the towel

Get all the soap off

Get out of the bathtub and dry yourself off

RESEACHER: Okay and then

Put your clothes on

RESEACHER: Okay what next

I don't know

RESEACHER: Get your clothes on then

Go to, read a book

RESEACHER: Okay then what

Go to bed

RESEACHER: Anything else?

No

RESEACHER: That's it?

Yea

Task 4

First you eat

Then you brush your teeth

Then you take a shower or a bath

Then go to, then read a book

Then go to bed

Task 5

She acting like the cat was lost

RESEACHER: She's acting like the cat's lost...and what else?

She was crying

RESEACHER: She's was crying...

The cat was waiting in the bed

RESEACHER: The cat was waiting in the bed... and next?

She found the cat

RESEACHER: She found the cat...

The cat was under the covers

RESEACHER: The cat was in the covers... anything else?

She went to bed with the cat

Task 6

Get the cover

Close your eyes

And go to sleep

RESEACHER: Would Ms. ____ have to tell the children anything?

She would say, "Go to sleep"

RESEACHER: Okay and what would happen next?

They would go to sleep

RESEACHER: They go to sleep, anything else?

You wake up and then we eat our lunch and then we go home

RESEACHER: You wake up and eat your lunch and then you go home?

I mean we eat breakfast and then go home

RESEACHER: Okay

Task 7

Jumped up

RESEACHER: What?

She jumped up...

RESEACHER: She jumped up. And then what?

It was a bad storm...

RESEACHER: Bad storm.... And then?

It was a bad thunder...

RESEACHER: It was a bad thunder...Anything else?

She woked up

RESEACHER: And when she woked up

She jumped and then she told her mother it was bad storm....

Participant 20

Task 1

I just put my pajamas on

And then I get a bathtub

I put my nightclothes on

I go to sleep

When I wake up then I go,

I put my school clothes on

And go to school

RESEACHER: And then what do you do?

Brush my teeth

Next eat my food [picks up spoon and bowl, pretends to eat]

RESEACHER: Eat your food...

And then take a bath [picks up soap and steps in tub, squats then gets out]

RESEACHER: Then take your bath...

[puts soap down, then stands looking at examiner]

RESEACHER: Anything else?

Yea.

RESEACHER: When you get out of the bathtub...

Go to sleep [puts pillow on rug, works to spread blanket over rug]

Pick up your PJ's? [picks up nightshirt]

You put it on [holds nightshirt up to body]

And then read a book [picks up book, carries it]

Then you go to sleep [puts head on pillow and closes eyes, holding book under arm]

RESEACHER: Alright [taking this as end of enactment], and what do you do with the book when you lay down?

You read a story [sits up, opens book, and turns pages]

RESEACHER: Do you read it or does someone else read it?

Man, somebody else reads

RESEACHER: Oh, who?

Um, my mama

RESEACHER: Um hum

When I go to sleep she does not really read to me

RESEACHER: She doesn't?

[nods no]

RESEACHER: Well, well who reads you a book?

Nobody

RESEACHER: So what do you do?

I look at the book

RESEACHER: Oh, you don't read the book?

I read [unitelligible]

RESEACHER: Okay, anything else?

Lay down

Then go to sleep [gets under cover, puts head on pillow again]

Task 2

Order: **A,B,C,D,G,F,E,H**

**She got out the bathtub, put her clothes on
When she was ready to take a bath she got in
When she was ready to get out she, she, she got out and dried herself
When she was ready to go, and when she was ready to put nightclothes on, she put her
nightclothes on
She's went to sleep
And then they read her a story
She brushed her teeth after she go to bed**

Task 3

**Brush your teeth
RESEACHER: R
Take a bath [moves doll around]
RESEACHER: R
And you go to bed
RESEACHER: R
[covers doll with blanket]
RESEACHER: Anything else? [puppet says this]
RESEACHER: What's she doing now?
[long pause while continuing to make doll hop around] Messing up her room
RESEACHER: R Does she do anything else to get ready for bed?
No, she went eat
Then she went to school**

Task 4

**It is night time she says take a bath
And you don't go to school, if they don't have school
RESEACHER: Stay asleep if you don't have no school?
And if you don't stay to sleep she might, she's gonna whoop you
RESEACHER: Well tell me this, what do you have to do before you get in the bed?
Tell me what I have to do to get ready for bed like a child [Freddy talkin]
Take a bath
And then after you play outside you take a bath and get clean
Put your clothes on
[nods yes]
And after you finish getting in that tub you go to sleep and you wake up
RESEACHER: R
Yeah and you eat breakfast**

Task 5

**The girl was sleeping
The cat ran away**

And she was sleepy, so she had her eyes closed
And the cat had ran away
And, she thought her cat was everywhere
And she went everywhere
RESEACHER: Oh, anything else?
And, and she was under the blanket
RESEACHER: Anything else?
She went to sleep with her cat

Task 6

They couldn't sleep
And they stayed up all night
RESEACHER: Anything else?
And they watched TV
They couldn't watch TV
They still couldn't go to sleep
Next morning it was light
It was still raining after night
When, when it got nighttime and it was still raining she couldn't sleep again

Task 7

Somebody came in through her window and came got, grab, grab her.
And she was dead.
RESEACHER: Anything else?
No

Participant 7

Task 1

Get in the tub first
RESEACHER: Okay, show us
[gets in tub]
Soap
RESEACHER: Oh [subject reaches for soap from tub and looks at examiner] Go ahead
[gets soap] This real soap?
Um hum ... What next?
[points while still in tub] Clothes
RESEACHER: What do you need to do in the bathtub?
Bathe [pretends to rub soap on all body parts]
Towel [reaches for towel]
Get out [gets out of tub and rubs towel on front and back of body, picks up nightshirt and puts it on]
RESEACHER: Now what?

Bed [goes to bed then quickly turns to get pillow and blanket, goes to rug, lies down and covers up]

RESEACHER: Okay, now what?

Sleep

RESEACHER: Show me how you sleep

[closes eyes]

Task 2

Order: **B,C,A,D,E,F,G,H**

She is taking a bath

She is drying herself

She is getting ready to put her bed clothes on

She is putting them

She is brushing her teeth

She, is her mama reading her a storybook

Her mama kissed her goodnight

Task 3

Brush your teeth

RESEACHER: R

Take a bath [moves doll around]

RESEACHER: R

And you go to bed

RESEACHER: R

[covers doll with blanket]

RESEACHER: Anything else? [puppet says this]

[little laugh then has doll get up and hop around]

RESEACHER: What's she doing now?

[long pause while continuing to make doll hop around] Messing up her room

RESEACHER: R Does she do anything else to get ready for bed?

No, she wenna go eat

And then she went to school

Task 4

You have to bathe

Brush your teeth

RESEACHER: Uh huh

And you have to bathe

RESEACHER: What next

You have to get out the bathtub

And then you have to get your clothes on then go to bed

Task 5

**Um, the little girl was about to go to sleep
Her cat ran up in her bed
And then she asked it, her, and then her mom took her hand
And then she said, "What's that?"
And her cat was up in the bed
RESEACHER: What else? What happened next?
She looked for her cat everywhere
She went back in
Her mom took her hand
And um, ah, she went back in her room and found the cat
The cat was sitting in there waiting
Then she went to sleep**

Task 6

**She would have to give us some toothbrushes and blankets
And and we don't know what to do to take a bath!
RESEACHER: So what would you do?
You didn't go outside cause it was a big storm outside
RESEACHER: So what would you do inside?
She would only have one towel and a lot of blankets and maybe a few toothbrushs and a lot
of blankets, so we would share
I had to rinse out the toothbrushes
RESEACHER: Good idea and what next?
Then you go to bed
And then the hurricane comes**

Task 7

**One night when a little girl was about to go to bed a burglar came there.
RESEACHER: Oh and what happened?
The burglar unlocked the door, she got a big pan.
RESEACHER: Oh
The burglar said that the pan would hurt
RESEACHER: Oh, then what happened?
Then the little girl woke up
She woke everybody in the house
And they all came to the little girl's room that night
And you know what?
The cops came over
And that's when they arrested the burglar
They took them to jail**

VITA

Carlton Michael Downey was born in 1975, in Hammond, Louisiana. He received his bachelor's degree from Northwestern State University in liberal arts in May 1997 and his master's degree in English in August 1998 also from Northwestern State University in Natchitoches, Louisiana. After working at Southeastern Louisiana University in Hammond, Louisiana, for two years, Carlton began teaching at Baton Rouge Community College. In 2004, he became a graduate student pursuing a doctoral degree in communication sciences and disorders. He currently teaches English at Houston Community College, and his current research interests are child language acquisition in normal and special populations.